



THE INDEPENDENT STATE OF PAPUA NEW GUINEA

PAPUA NEW GUINEA

DIGITAL GOVERNMENT PLAN

2023 - 2027

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MINISTER'S FOREWORD



I am pleased to present the Digital Government Plan 2023-2027 to the people of Papua New Guinea.

The Digital Government Plan is mandated under Section 10 of the Digital Government Act 2022, a key legislation passed by the 10th Parliament in April 2022 and is critical to driving the Marape-Rosso Government's digital agenda.

Let me take this opportunity to thank the Marape-Rosso Government for continued support to my Ministry and the Sector to date. I have held this important responsibility since the formation of previous Marape-Basil government and now the Marape-Rosso government. It has been an absolute honour and privilege to serve our people in this capacity.

This document is a culmination of efforts, discussions and consultations over-time, it is one of the key policy initiative and will be implemented by my Department and the Agencies that report to me as the Minister for Information and Communications Technology.

In the age of fast advancement of technology and as the world becomes more dependent on technology at all level, Papua New Guinea as a country must strategically position itself to take advantage of these opportunities. In the last couple of Parliament sittings, I have highlighted some key sector challenges and interventions my Ministry undertook. One of the the priority was the need for the ICT Sector to have proper coordination and oversight mechanisms; I also highlighted the major policy interventions to support developments in both the social and economic sectors.

The PNG Digital Transformation Policy, approved by Cabinet in 2020 sets the direction for the reform and interventions for the reform interventions taking place within the ICT Sector and these policy directions are now translated into programs and activities through the Digital Government Plan 2023-2027.

At this juncture, I would like to point out that under the Marape-Rosso Government, the Ministry of ICT through the Department of ICT is for the first time empowered through the Digital Government Act 2022 to lead and coordinate digital transformation within government. This will enable work on some critical digital government services which includes:

- a whole-of-government approach to Government Cloud Services;
- a Federated Secure Data Exchange Platform to facilitate electronic exchange and sharing of data amongst public bodies;
- a single window National eGovernment Portal for citizens to have access to common public information and services;

We anticipate that through the digital transformation initiatives detailed in the Digital Government Plan 2023-2027, it will spur the growth in SMEs, business, and stimulate the country's economic growth.

For PNG to harness the full potential of digital technologies towards growing its economy, it requires a certain degree of coordination and collaboration. That has been addressed through the strengthening of the Department of ICT and the development of policy and legal framework necessary to support digital transformation.

This Government through my Ministry has set the foundation for digital transformation but there is a lot more work to be done beyond this plan, as ICT is an evolving industry and technologies, trends and practices continue to evolve.

In conclusion, from the Government's position, the focus is on accessibility, affordability, reliability and cyber safety.

We have made huge progress to ensure our country and the people embrace digital technologies and services, and gain from the benefits that come with the use of technology.

May this document be the baseline to delivering the Digital Government Agenda to the people of Papua New Guinea in years to come.

A blue ink signature of Hon. Timothy Masiu, MP, written in a cursive style.

Hon. Timothy Masiu, MP
Minister for Information and Communications Technology
and Member for South Bougainville

SECRETARY'S STATEMENT



It is a great excitement and also a relief to finally have the Digital Government Plan 2023-2027.

The Digital Government Plan 2022-2027 is service oriented plan and is the document emanates from extensive consultation with the key government stakeholders and ICT sector players as determined through the Digital Transformation Policy 2020, and as well, it is mandatory under Section 10 of the Digital Government Act 2022 to have the plan for the government to lead and interact with the sector. Digital Government Act 2022 has given legal mandate to the Department in implementing and supporting the digital sector initiatives across whole-of-government as prescribed in the Act.

Hence, the Digital Government Plan 2023-2027 will support the Medium-term Fiscal and Revenue Strategy and Medium-term Development and Strategy, it aim to increase generation and deliver goods and services more effectively and effeciently. To effectively implement the plan, the Deaprtment is pushing ahead with the drafting of a wide suite of enabling policies, strategies, standards and legislation. The Department is also developing and or taking lead in drafting the following policies, strategies and drafting instructions:

- Digital Economy Policy and Strategy
- ICT Clusterisation Policy and Strategy
- UAS Policy and Strategy 2023 - 2027
- National Broadband Policy 2022 - 2027
- National Cyber Security Strategy
- Government Cloud Policy
- Data Governance Policy
- Digital Infrastructure Policy
- Freedom of Information Policy and Legislation

The government has embarked on a journey to drive public services digitally by going paperless so my Department have the utmost support of thr national government together with its major partners to strategically rollout the Digital Government and Digital Economy agendas which are now the key priorities for the government.

The Digital Government Plan 2023-2027 is in alignment with;

- APEC Internet and Digital Economic Roadmap
- Vision 2050
- Sustainable Development Goals
- ICT Roadmap 2018

The Department has done close consultation with the Department of Treasury and the Department of National and Monitoring to ensure that the Digital Government Indicators contained in this plan are captured in the Medium-term Development Strategy IV 2023 - 2027 and the Mid-term Revenue Strategy 2023 - 2027.

I remain optimistic, focused and committed to face the challenges that are ahead of us and to collaborate with all key stakeholders to implement Government agendas, through Digital Government Plan 2023-2027. This will set a new pace in public service delivery where services is anticipated to be made much more simple, fast and easy for citizens to use.

To conlude, I wish to thanks all my staff as well as all our key stakeholders and partners for their mutual cooperation and ongoing support in ensuring we remain to the cause of delivering quality, affordable and reliable ICT services to our people.

May God continue to bless Papua New Guinea!



STEVEN MATAINAHO
Secretary

ACRONYMS

APEC	Asia-Pacific Economic Cooperation
CERT	(Papua New Guinea) Computer Emergency Response Team
CPTPP	Comprehensive and Progressive Agreement for Trans-Pacific Partnership
CRVS	Civil Registration and Vital Statistics
CSOC	(Papua New Guinea) Cyber Security Operations Centre
DGA2022	(Papua New Guinea) Digital Government Act 2022
Digital ID	Digital Identification
DoT	Department of Transport
DTP2020	(Papua New Guinea) Digital Transformation Policy 2020
ETA2021	(Papua New Guinea) Electronic Transactions Act 2021
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
G2B	Government-to-Business
G2C	Government-to-Citizen
G2E	Government-to-Employee
G2G	Government-to-Government
GDP	Gross Domestic Product
GoPNG	Government of Papua New Guinea
ICT	Information and Communications Technology
IGIS	Integrated Government Information System
IXP	Internet Exchange Point
MTRS	(Papua New Guinea) Medium Term Revenue Strategy 2018-2022
MTDP III	(Papua New Guinea) Medium Term Development Plan III 2018-2022
M&E	Monitoring and Evaluation
NCSC	(Papua New Guinea) National Cyber Security Centre
OECD	Organization for Economic Cooperation Development
OGP	Open Government Partnership
Plan	(Papua New Guinea) Digital Government Plan 2023-2027
PIP	Public Investment Program
PNG	Papua New Guinea
PNG NID	Papua New Guinea National Identification Project
PMO	Project Management Office
PoP	Point of Presence
PSICTSC	Public Service ICT Steering Committee
QoS	Quality of Service
RCEP	Regional Comprehensive Economic Partnership
SDG	2030 Agenda for Sustainable Development
SIDS	Small Island Developing States
SaaS	Software as a Service
SD-WAN	Software Defined Wide Area Network
WTO	World Trade Agreement
WTFA	World Trade Facilitation Agreement
UN	United Nations
UNCITRAL	United Nations Commission on International Trade Law

PREAMBLE

In the internet era, Information and Communications Technology (ICT) is becoming a catalyst that stimulates economic growth, strengthening governance, and changing our patterns of social and political interactions. In the public administration, the use of ICT to enhance and improve public service delivery and performance is embraced by many governments worldwide.

The conventional wisdom has been that technology is neither very important, or requires technical expertise rather than leadership, or is simply too risky for public leaders to get personally involved.

These views are changing, however, due primarily to the astonishing growth of the internet, e-mail, and range of e-services, ICT is now widely acknowledged as a critical force in driving the public service shaping the future. In the Papua New Guinea public sector, we are meeting these challenges by setting appropriate for our public sector policy frameworks, strategies and plans to enable a collaborative and holistic approach toward deploying and utilizing digital technologies to deliver public goods and services to businesses and the citizens.

ICT should be seen as an enabler, cutting across all sectors of the economy. Within the public sector, ICT has linked public agencies and departments to one another over a government wide network and has enabled:

- Sharing of information across departments and agencies;
- Streamlining of government processes thereby avoiding duplication of processes amongst departments and agencies;
- Promoting collaboration and the sharing of best or good practices among all public bodies;
- Providing up-to-date and accurate information for the purpose of national planning;
- Reducing operational costs and increased savings through government 'shared services';
- Government to government, government to business and government to citizens participation in economic development.

Papua New Guinea stands to benefit immensely from the use of digital technologies. It is a greater tool that can accelerate the government's efforts towards achieving sustainable economic development, improving governance and enabling social integration.

OVERVIEW

Digital Government Plan sets out impact digital programs and projects to be implemented holistically by whole of government over a five (5) year period (2023 – 2027). It aims to enhance and support the Government:

- utilize relevant and appropriate digital technology platforms to increase revenue;
- use appropriate digital technology platforms to deliver public services more effectively and efficiently; and
- use appropriate digital technologies to digitally track development indicators real-time.

The Plan is a requirement under Section 10 of the Digital Government Act 2022. It aligns to major ICT sector strategic directions contained in the ICT Sector Roadmap 2018 and the Digital Transformation Policy 2020, and it is design to support the implementation of Medium-Term Revenue Strategy towards increasing revenue generation and delivering public services under the Medium-Term Development Strategy more effectively and efficiently.

The digital services identified in this Plan will be delivered through these three (3) channels:

I. Government to Government and or Government to Employees (G2G G2E);

Government Platform of Information Systems' will enable various departments to integrate and consolidate hardware and create platforms for shared functions and government collaboration.

II. Government to Business (G2B);

Government to Business digital services integration is crucial in the digital age for ease of doing business. Systems can communicate with each other providing timely and readily available information for different business use cases. Government is an important player in any economy, therefore an integrated system between government and businesses is vital in this digital age and contemporary business environment.

III. Government to Citizens (G2C).

Government to Citizens Services will focus on delivering a citizen identification (ID) system and a system to allow individuals to monitor the administration and use of their personal data, for development purpose through safer, secure and reliable ICT platforms to access digital service and at affordable value.

1_ IXPs help create shorter, more direct routes for Internet traffic. They provide a more affordable alternative to sending local Internet traffic abroad, only to have to return that traffic via an international link, which can be an expensive business. Internet exchange point hubs are playing a critical role in making local Internet faster and more affordable. IXPs provide an alternative to the expense of sending domestic Internet traffic abroad, only to have to return that traffic via an expensive international link. Basically, IXPs help keep local traffic local and help with cheaper, better, faster local Internet traffic exchange.

These are the major digital services, to be delivered in phases, through whole of government approach over a 5 year period:

Service	Description	Lead Agency	(Indicative timelines for Project completion / System Launch)
Government-to-Citizens (G2C)			
ePassport (Greenfield)	This service will enable citizens to fill passport application, make payment and apply online for passport and receive notice for passport collection online	Department of Immigration and Citizenship	2023-2025
eHealth (Greenfield)	The service will target health workers on one hand, patients and general communities on the other. It will enable medical specialist to provide instructions to other general medical workers in community clinics and health centers. eHealth can enable health and welfare information to be provided to patients and citizens online. The system can be designed to enable every citizen to view their medical reports at any medical Centre.	Department of Health, DICT, Provincial Health Authority	2023-2025
Education (Greenfield)	E-education or e-learning will be the delivery of education or any type of training by electronic methods, such as computer or a smartphone where teaching material will be accessed online.	Department of Education, DICT, NICTA	2023-2025
eCensus (Greenfield)	This particular service will allow for an electronic administrative record in the country, through which data on population, residence, and establishments are collected, stored and shared in real-time for planning and decision-making purposes.	National Statistics Office, Department of National Planning & Monitoring	2023-2025
eLands (Brownfield)	E-lands will enable citizens to access or conduct enquiry, make payments and receive notice for state lease rentals online.	Department of Lands, Land Tittles Commission	2023-2024
Digital ID (Greenfield)	This service will give every citizen digital identity as a preliminary requirement to secure access to government or other services online, that requires identification using their registered Digital ID	Civil Registry (PNG NID), DICT	2023-2025
eAgriculture (Greenfield)	This online service will enable citizens, local farmers or businesses to access information, knowledge, networks and markets locally and globally to increase agricultural production.	Department of Agriculture	2023-2025
eJustice (Greenfield)	This service will improve citizens access to justice and judicial actions by accessing the eJustice services online using a Digital ID	Department of Justice & Attorney General	2023-2025
eCommon Roll (Brownfield)	The service will allow citizens to confirm registration on the common roll, view their voting eligibility, and update or correct information appearing on the common roll online through the Electoral Commission.	Electoral Commission of Papua New Guinea, Civil Registry (PNG NID).	2023-2026
EVoting (Greenfield)	This service will aid voters to cast votes through a digital or electronic medium such as (i) Electronic Voting Machine (EMV), SMS or Remote or internet voting (i voting)	Electoral Commission of Papua New Guinea, DICT, Civil Registry (PNG NID)	2023-2026

Figure 1: Government-to-Citizens (G2C) Services

Government-to-Business (G2B)			
Service	Description	Lead agency	(Indicative timelines for Project Completion/ System Launch)
GovService Portal (Greenfield)	The government service portal will provide a listing of various online services facilitated by different government entities under one online platform and ensure standardization right across. It will be a one-stop access to government services	DICT	2023-2024
SME Startup Portal (Greenfield)	This service will enable SMEs to have access to online information, resources and digital services linked to responsible government agencies to ensure full registration, compliance, access to service providers, financial institutions, business tools and marketing opportunities to grow the business	Department of Commerce and Industry, SME Corporation, Investment Promotion Authority and DICT	2023-2025
ICT Cluster Portal (Greenfield)	The ICT Cluster Portal will provide a platform to support technological entrepreneurship and innovation and ICT start-ups.	, DICT, DHREST,	2023-2025
Investment Portal (Greenfield)	Investment Portal will provide a centralized platform for a comprehensive and a clear visibility of GoPNG economic investments. <i>(Project and demand financials, deadlines, and other important metrics in an intuitive user interface that makes project and demand management more efficient.)</i>	Department of National Planning, Department Treasury IPA, Department of Commerce and Industry	2023-2025

Figure 2: Government-to-Business (G2B) Services

Government-to-Government (G2G)			
Service	Description	Lead Agency	Indicative Timelines for Project Completion/ System Launch)
eFinance (Brownfield)	This service (IFMS) will enable users to post and view real-time accounting and financial data online.	Department of Finance, DICT, Department of National Planning & Department of Treasury	2023-2025
eBudget (Greenfield)	This service will enable state budgetary functions, procedures, or services across the budgetary cycle (planning, programming, budgeting, appropriations, control, and evaluation of financial resources) online.	Department of Treasury, Department of Finance, Department of Planning and DICT	2023-2025
eCabinet (Brownfield)	This service will enable all government ministries to submit National Executive Council papers for deliberations and decisions while enabling NEC Secretariat to coordinate their business as well as track and monitor the progress of the implementation of NEC Decisions online.	Office of the National Executive Council, Department of PM & NEC, and National Parliament,	2023-2025
eParliament (Greenfield)	This service will digitize the parliamentary information system (minutes, Hansard, library books) for easy access by MPs. The service should also enable MPs to register their attendance, work and meet remotely, electronically access documents required for deliberations, anytime and anywhere, vote electronically, and also track amendments to bills.	National Parliament, Department of PM & NEC	2023-2026
eHR (Greenfield)	This service will enable and keep track of employee records and enhance human resources (HR) processes, including job analysis, recruitment, selection, training, performance management, and compensation online for the whole of government (Automating Public Service General Orders)	Department of Personal Management, DICT, Civil Registry (PNG NID)	2023-2025
eProcurement (Greenfield)	This service will enable an online procurement of public goods and services and track and monitor the government procurement processes from inception to the final procurement stage. . (Automating the provisions in the National Procurement Act 2016)	National Procurement Commission, DICT, Department of National Planning, Department of Treasury and Department of Finance, Department of Justice, and Attorney General.	2023-2025
eCustoms (Brownfield)	This service enables business transactions online which the Customs administers business to its users, via an electronic service (Require infrastructure/connectivity support)	PNG Customs Commission, DICT	2023-2025
eAdmission (Brownfield)	This service will enable admission into various courses across state universities, colleges and institutions online (Online Selection-Require Infrastructure/Connectivity Support)	Department of Higher Education (DHREST)	2023-2025
ePIP (Greenfield)	This service will enable online submission of public investment programs budget and tracking, monitoring and reporting of the implementation of public investment programs	Department of National Planning, Department of Treasury, Department of Finance, Provincial Administration and DICT	2023-2026
eCourts (Brownfield)	This service will enable easier access to information on case status and judgements and orders. a (Require Infrastructure- Connectivity Support)	National Judicial Staff Services, DICT	2023-2025

Figure 3: Government-to-Government (G2G) Services

1. INTRODUCTION

1.1 Purpose

Digital transformation is about enhancing, strengthening, and improving performance and productivity of the public sector agencies to effectively deliver goods and services to citizens, businesses, and investors.

Digital infrastructure is important in enabling connectivity, but it is the adoption of digital services that use this connectivity which will create value for PNG. Citizens and businesses can benefit from access to information, tools to improve productivity and efficiency, and improved access to critical services such as health, education, and justice. These include all digital government services such as ability to pay taxes, vote, pay utility bills, school fees, register for school, conduct business online, report a crime, access education and health records.

Digital platforms will play an important role in our digital transformation. They will provide reusable, common business services to accelerate digital adoption across government. We are working to build common platforms that make it easy to deal with the government.

Achieving a digital government is the outcome of the digital transformation journey, and this can be realized through:

- the use of digital tools and systems to provide better Government services to citizens and businesses using (ICT); and
- providing a wide variety of benefits including increased efficiency and savings for governments and businesses, increased transparency, and greater participation of citizens
- enabling the streamlining, planning, coordination, development, and implementation across the whole of the government of digital services, digital infrastructure, digital skills, and all other aspects of digital government.

This Plan is about planning, coordinating, and integrating ICT in public administration through various government processes, operations, and structures with the purpose of enhancing Government to Government (G2G), Government to Citizens (G2C), and Government to Business (G2B) transparency, efficiency, accountability and citizen participation via, and vice versa.

For this Plan to be achievable the digital agenda must be elevated and recognized as a cross-cutting development sector of its own. All public bodies are to align their respective sector and organizational plans to this sector plan. This Plan acts as a guide to government, businesses, investors, ICT clusters, and bilateral partners to align resources where relevant towards sustaining the implementation of 'Digital Government'.

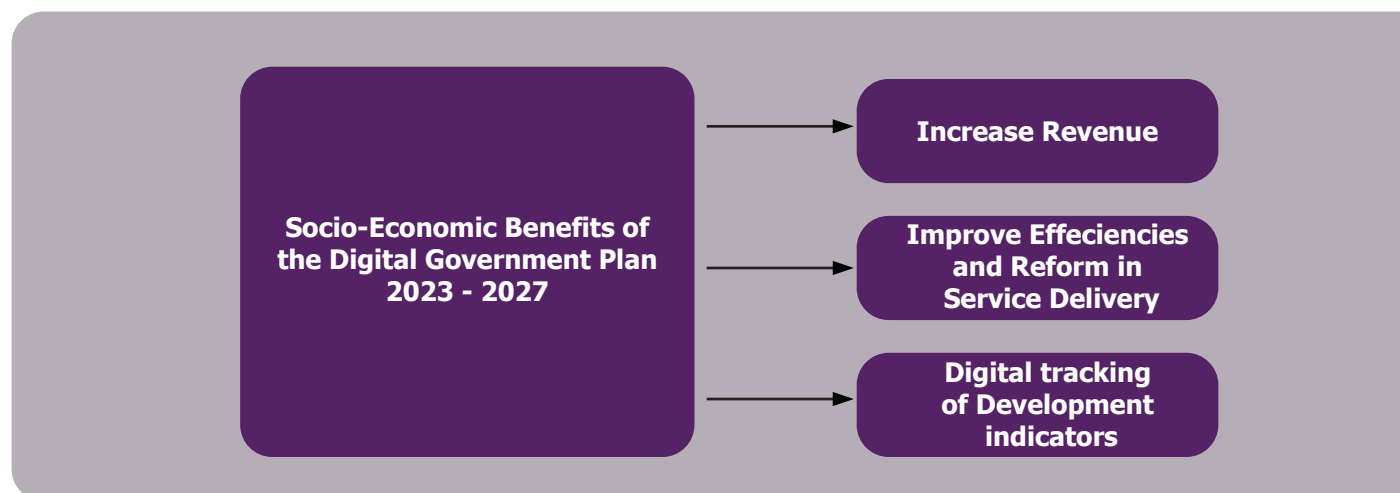
1.2 Mandate

The digital government agenda is a strategic pillar under the National ICT Roadmap of 2018 and the Digital Transformation Policy 2020 (DTP2020). The delivery of a digital government is now fully enforced under the Digital Government Act 2022 (DGA2022) through which Section 10 of the Act requires for a "Digital Government Plan" (the Plan) to be formulated and endorsed by the Public Service ICT Steering Committee. In addition, the various delivery programs and mechanisms articulated in this Plan are mandated through the DGA2022.

1.3 Socio-Economic Value

Facilitating the digital economy is widely recognised as an important factor for economic development both domestically and internationally. The increased use of electronic communications improves the efficiency of commercial activities, enhances trade connections, and allows new access opportunities for remote areas and markets.

Digital platforms will play an important role in our digital transformation. They will provide reusable, common business services to accelerate digital adoption across the government. Common platforms that make it easy to deal with the government and enable different agencies to work together and deliver joined-up services will be built. This will also reduce the costs and risks to our digital transformation. The Government recognizes that in delivering on the Digital Government Plan, three important national outcomes will be realized.



Comparative case studies have shown that adoption of digital government directly contributes towards the improvement in the economies of scale and achievement of high turnaround time and satisfaction for individuals and businesses accessing public goods and services. Digitization of governments through use of ICT contributes directly to positive revenue growth for the government. This is through enabling effective mechanism for collection of taxable and non-taxable revenue, and further when applied appropriately has potential to substantially increase government taxable and non-taxable base, hence increase potential accessible revenue for the government over the current mechanism.

1.4 Economic Impact

A Rapid Economic Impact and Fiscal Impact Assessment of the Digital Government Plan was conducted in 2022.

The table below summarizes the present value of the calculated impact on GDP due to the implementation of the Plan. As indicated before these results shall be regarded as the net impact above what would have been attained without the Plan, holding other factors constant. As such, they do not pretend to represent the actual observable increase in GDP in the period under study. The actual GDP in the period under study will differ from our projections for two main reasons. First, our projections are based on past observations of the impact of increased ICT services or increased government spending on GDP. To the extent that the ICT market and the economic structure in PNG change over time, those past multipliers or impact responses would differ from the actual responses over the period under study.

Figure 4: Summary results of the economic impact of the Plan on GDP

Time Horizon	Present Value Increased GDP due to Plan (Million USD)	
	Method 1	Method 2
10-year time horizon (2023-2032)	292.15	148.48
Effect on perpetuity	971.70	303.92

Note: present value refers to value on 31 Dec. 2022.

1.5 Fiscal Impact

The table below summarizes our calculated fiscal impact due to the implementation of the Plan. As indicated before these results shall be regarded as the net impact above what would have been attained without the Plan, holding other factors constant. As such, they do not pretend to represent the actual observable increase on government revenue, or tax revenue, in the period under study. The actual government revenue, or tax revenue, will differ from our projections in the Table below for three main reasons.

First, our projections are based on projections of increased GDP from the first economic impact method. As indicated before those projections are based on past responses of GDP to increased ICT usage or government spending. To the extent that the ICT market and the economic structure in PNG changes over time, those predictions of the change on GDP would differ from the actual responses.

Second, even if the increase on GDP were to be accurate, the calculated fiscal impact resulting from such increase is also based on past observed relationships between a change in GDP and government revenue or tax revenue. To the extent that the economic structure in PNG changes over time, those past multipliers or tax elasticities would differ from the actual values.

Third, as indicated earlier, our projections were calculated holding other factors constant, but other factors are not held constant in the real world. This would lead to the actual values being different to the calculated projections.

Figure 5: Summary results of the fiscal impact of the Plan – Present value estimates

Method	P.V. Increased General Gov. Revenue due to Plan (Million USD)	P.V. Increased Tax Revenue due to Plan (Million USD)
Method 1		
10-year time horizon (2023-2032)	47.74	43.44
Effect on perpetuity	159.04	144.70
Method 2		
10-year time horizon (2023-2032)	32.62	29.68
Effect on perpetuity	109.27	99.42

Note: present value refers to value on 31 Dec 2022.

The Economic and Fiscal Impact Analysis of the Digital Government Plan

The Digital Government Plan is a 5-year plan, however, the models used for economic and fiscal analysis extend over a 10-year period to clearly show a long-term perpetuity increase in the general government revenue. There are a few points to be highlighted. A full comprehensive analysis can be extracted from the report "Economic and Fiscal Impact of the Digital Government Plan 2023-2027" attached in the appendix.

1. Baseline Economic impact of the Plan over the next 10 years to increase PNG GDP equivalent to USD 292 million or PGK 1.28 billion
2. Baseline Fiscal over the next 10 years will produce an increase on the general government revenue equivalent to USD 32.6 million in PGK 114.75 million
3. Tax revenue to increase due to the Plan in next 10 years by USD 29.7 million or PGK 104.54 million.

It is important to note that; These anticipations from the Plan are present value terms over what can be achieved without the Plan.

1.6 The Digital Sector

The digital sector will be recognized in a holistic and cross-cutting approach in the Medium Term Development Plan and Medium-term Revenue Strategy to promote cross sector collaboration and synergy and, to be a catalyst to accelerate economic development and excellence in service delivery across all the other sectors. The Digital Government Plan is the framework for the digital sector, charting the pathway towards reforming the business process for service delivery by government agencies within the social and economic sectors through digital transformation. The sector will ensure a conducive environment for the businesses and finances along with creating a skilled workforce and transforming the government to lead the impact initiatives toward social and economic prosperity.

The PNG Digital Transformation Policy 2020 is the directional framework for the digital sector. The Policy contains six strategic focus areas that constitute various sub-sectors. Sub-sector policies, strategies, implementation plans, and subsequent legislative framework will be drafted and enacted to bolster the growth of the digital sector as the catalyst to support Papua New Guinea achieve its national development agenda. The department is working on a full slate of digital economy policies such as Data Protection and Privacy, Universal Access, Critical infrastructure, Encryption. Communications Decency, Cyber Strategy, Cloud and other related policies. The maturity of the digital sector is critical to the social and economic development of PNG.

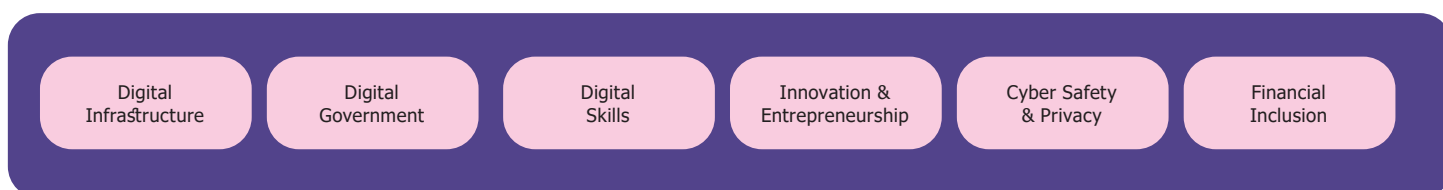


Figure 6: Highlights six sub sectors under the Digital Sector.

The Digital Sector Indicators

Indicators	Source	2021	2022	2023	2024	2025	2026	2027
Digital Infrastructure								
1. Proportion of population covered by telecommunication services (voice and data) %	Datareportal online	34	36	42	53	64	75	90
2. Proportion of population with access to internet (%)	Datareportal online	30	34	39	50	60	65	70
Digital Government								
1. Number of Districts having access to Government Private Leased Network	DICT	0	0	8	18	38	58	78
2. Number of Districts having access to Government Shared Services	DICT	0	0	8	18	38	58	78
Digital Skills								
1. Percentage of population using digital services	DICT	n/a	tbd	5	20	40	60	70
2. Percentage of population using technology to provide digital services	DICT	n/a	tbd	5	20	40	60	80
3. Adoption of ICT to Institution and Curriculum	DICT	n/a	tbd	10	60	100	100	100
Innovation & Entrepreneurship								
1. Percentage increase in the number of IPA registered SMEs and MSMEs in the ICT sector		n/a	tbd	10	20	30	40	50
2. Percentage of IPA registered of SMEs and MSMEs participating(active) through the Cluster	DICT	n/a	n/a	5	15	70	90	100
3. Percentage of increase in digital services innovated through the Cluster (%)	DICT	n/a	0	10	20	35	60	80
Cyber Safety and Privacy								
1. Improve in National Cyber Security Index (NCSI)	Estonia NCSI		113th	100th	80th	70th	55th	50th
2. Improvement in ranking in Global Cyber Security Index (GCSI)	Global CSI		118th	100th	80th	70th	55th	50th
3. Percentage of public bodies monitored through the National Cyber Security Center	DICT		5	40	80	100	100	100
Financial Inclusion								
1. Percentage of population having access to digital financial services	DICT		tbd	10	30	50	70	90
2. Percentage of population using to digital financial services	DICT		tbd	5	25	45	65	80

Figure 7: Digital Sector Key Development Indicators (2027 - 2023)

1.7 Strategic Alignment

The development and adoption of the PNG Digital Transformation Policy 2020 emanated from the ICT Sector Roadmap 2018 and the APEC 2018. The Electronic Transactions Act (ETA2022) and Digital Government Act 2022, and consequential legislative framework for the digital sub- sectors, provides the operational framework for PNG to deploy digital technologies as enablers towards accelerating economic growth and enhancing the delivery of social services thus driving PNG towards a digital economy. The 'Digital Sector' and the various programs within each sub-sector will be aligned towards realizing the outcomes of the Development Strategic Plan 2030-2010 (DSP2030) and enable the government to not only achieve the Vision 2050, but also meet and exceed its commitments under UN Sustainable Development Goals, specifically its work on health, education, gender, connectivity, and smart cities.

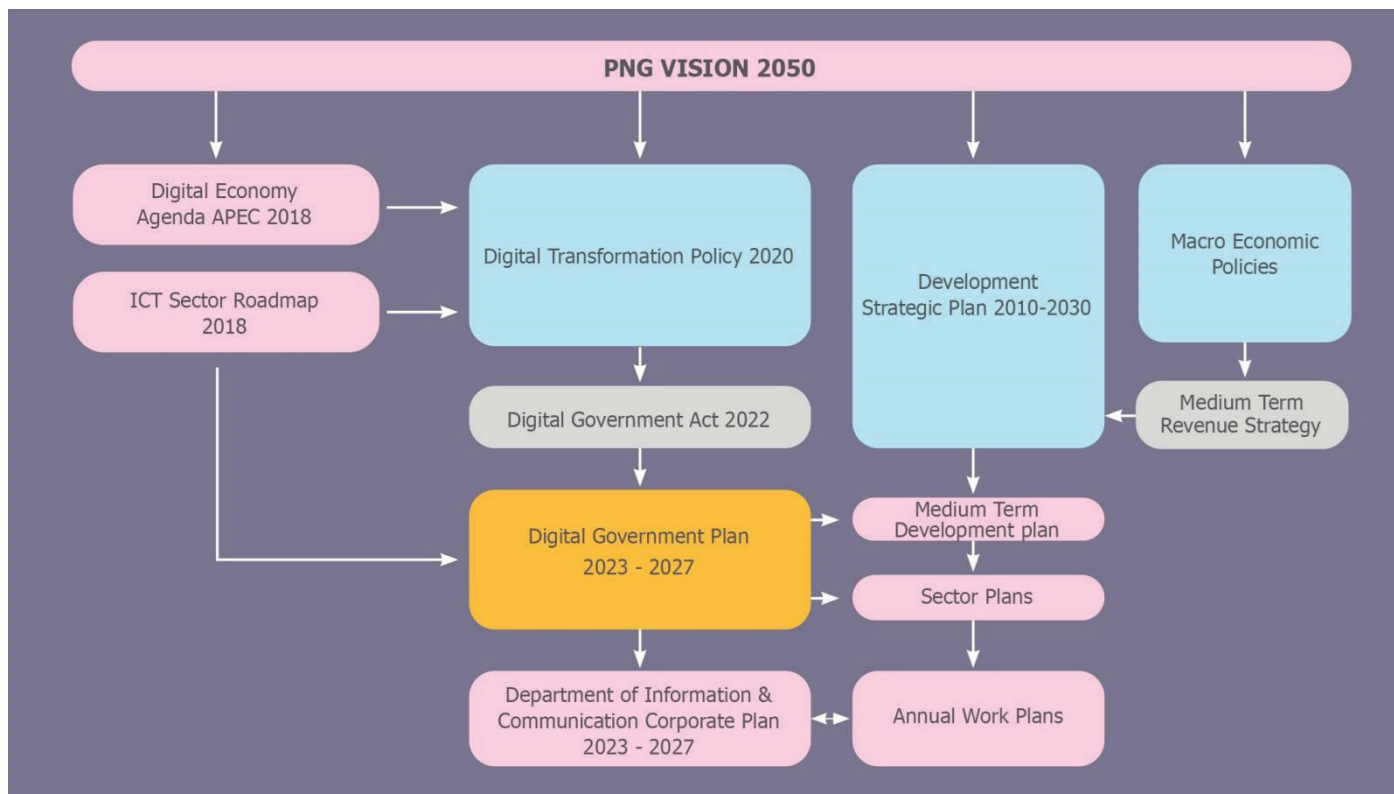


Figure 8: The absence of the digital agenda in the DSP2030 has led to the formulation of Digital Transformation Policy 2020. The figure depicts the Strategic alignment and placement of ICT (Digital Sector) and the Digital Government Plan within the overall national development policy framework.

1.8 Alignment with Commitments

The Digital Sector serves as a catalyst to accelerate achievements of commitments in all other sectors. It focuses on the whole of government digital transformation, coordinated through the Public Service ICT Steering Committee. Relevant and appropriate digital technology platforms will be deployed to enhance collaboration and partnership with domestic and international stakeholders to deliver expected national and international or regional commitments. These are the commitments that Digital Sector will support:

I. Commitments under Medium Term Revenue Strategy, Volume 1 (2022) – eCommerce platforms and PNG ICT Cluster e-Government Portal and digital platform will be established to enable transaction and promote collaboration between G2G, G2B and G2C.

The key technology enablers to be delivered by the Plan:

- Private leased Cloud Technology
- Cyber security operational Centre
- Federated Secure Data Exchange Platform
- Digitizing services across public sector

II. Commitments under Development Strategic Plan and Medium-Term Development Plan

The Digital Sector will be cross-cutting, providing relevant and appropriate technology tools to enhance delivery of goods and services in all sectors.

The key technology enablers to be delivered by the Plan:

- Private leased Cloud Technology
- Cyber security operational Centre
- Federated Secure Data Exchange Platform Digitizing services across public sector

III. Commitments towards strengthening Good Governance, Accountability and Transparency

Digital Sector will focus on strengthening and supporting automation across public agencies and departments to improve governance in all sectors.

This will be done through business process re-engineering of functionalities across key sectors and supported by the key technology enablers:

- Private leased Cloud Technology
- Cyber security operational Centre
- Federated Secure Data Exchange Platform
- Digitizing services across public sector

IV. Regional commitments on Digital Economy, United Nations Commission on International Trade Law (UNCITRAL), UN Convention on Electronic Contracts and UN ESCAP Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific

Digital platforms will be developed to enable domestic and international e-trade, e-commerce including creation of a predictable legal environment for digital commerce, digital trade, and digital government. Legal environment for digital trade, digital commerce and digital government will cover:

- electronic contracts,
- use of smart contracts,
- use of electronic signatures; and
- issues regarding authentication and non-repudiation.

V. Regional Commitment on UN Sustainable Development Goals

Digital Government services and digitization and improvements to citizens that enable the Government to meet its commitments to the UN Sustainable Development Goals that are prioritized and captured under PNG's Medium Term Development Plans III (2018-2022) and with the UN.

Specifically, UN SDG 1,4,5, 9, and 10 and SDG commitments on Health, education, Gender, connectivity, and smart cities.

VI. Regional Commitment towards Open Government Partnership and UN Convention against Anti-corruption. e-Government Portal and digital platform will be established to:

- promote access to public documents, laws, actions, and all documentation and information;
- be a one stop shop for updating and keeping others informed about the Government's OGP Commitments;
- make available open data so that other services can be created; and
- allow reporting of corrupt practices and information dissemination.

VII. International commitment on Global Cyber Security and Budapest Convention on Cyber Crime Deploy relevant digital platforms and capabilities to secure PNG's cyber environment and support collaboration and cooperation with relevant international agencies on cybercrime including:

- expedited preservation of stored data, expedited preservation and partial disclosure of traffic data, production order, search and seizure of computer data, real-time collection of traffic data, and interception of content data;
- transborder access to stored computer data through the creation of a 24/7 network of judicial officials in the Signatory Parties for ensuring speedy assistance for help in tracking and preservation of electronic evidence of cyber crimes
- Digital Forensic Lab for gathering and processing of electronic evidence
- disclosure of domain name registration information and for direct co-operation with service providers for subscriber information, effective means to obtain subscriber information and traffic data, immediate cooperation in emergencies, mutual assistance tools, as well as personal data protection safeguards.

VIII. International commitment

The GoPNG is also working with international partners such as the GFCE, PACSON and others on cybersecurity. It is also working to fulfill its commitments to the Extractive Industries Transparency Initiative (EITI) and with the Financial Action Taskforce (FATF) for AML/CTF.

Additionally, GoPNG is on the glide path to accede to the GoPNG will be deploying relevant digital platforms and capabilities to secure PNG's cyber environment and support collaboration and cooperation with relevant international agencies on cybercrime including: expedited preservation of stored data, expedited preservation and partial disclosure of traffic data, production order, search and seizure of computer data, real-time collection of traffic:

- Cyber security operational Centre
- Federated Secure Data Exchange Platform
- Digitizing services across public sector

2. GOALS

2.1 Goals and Sub Goals

The Plan translates the impact digital services provisioned in the DGA2022 into an action strategy for implementation. The key goals of the Plan cascades from the PNG DTP2020 vision, mission, and goals.

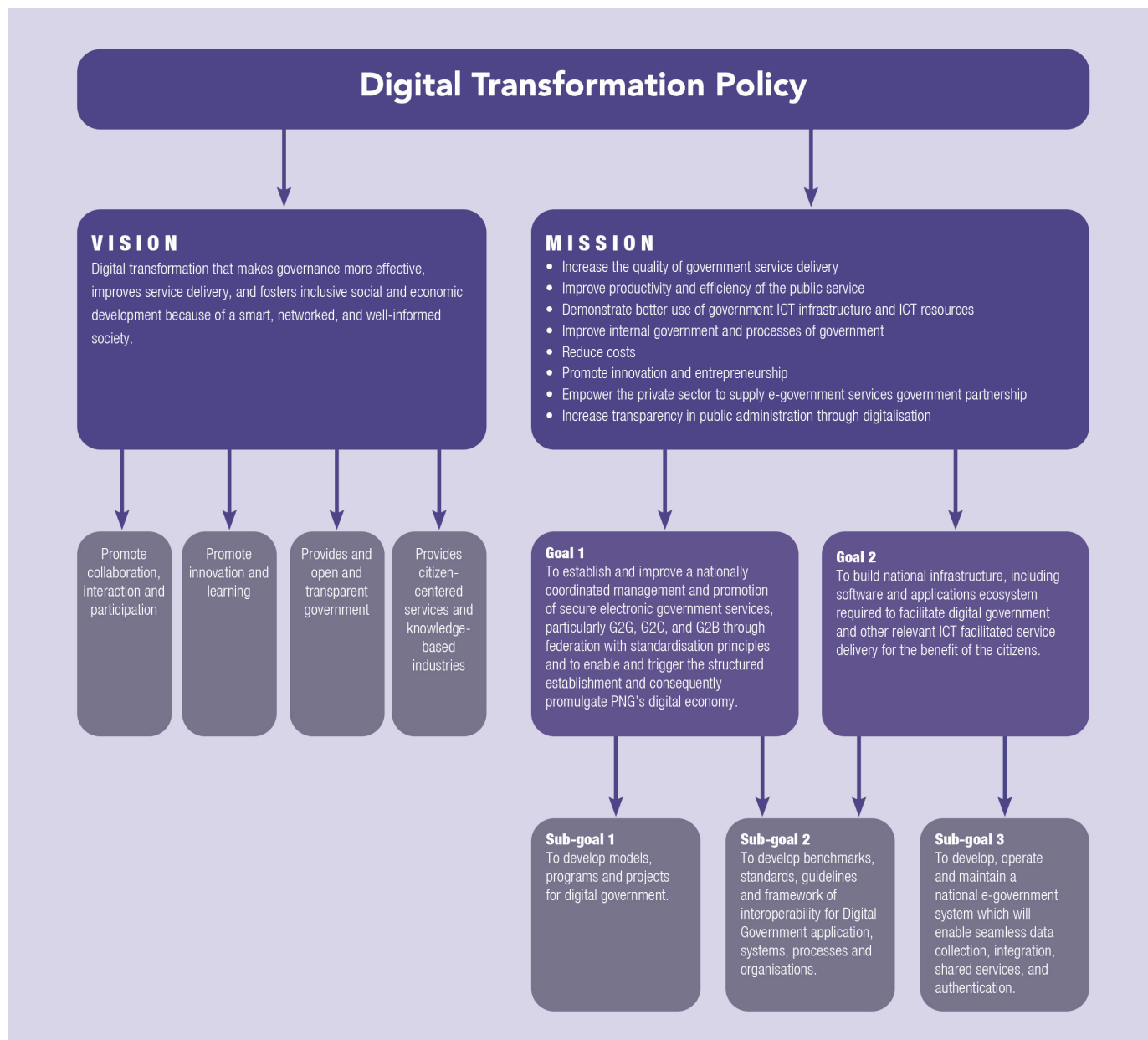


Figure 9: The PNG Digital Transformation Policy 2020's Vision, Mission, Goals, and Subgoals. The Digital Government Plan 2023-2027 is aligned to achieve these strategic objectives.

2.2 Focus Areas

The Plan focuses on three delivery channels:

Government to Government / Government to Employees (G2G / G2E);

Government Platform of Information Systems' will enable various departments to collaborate to integrate and consolidate hardware and create platforms for shared functions.

Government to Business (G2B);

Government to Business digital services integration is crucial in the digital age for ease of doing business. Systems can communicate with each other providing timely and readily available information for different business use cases. Government is an important player in any economy, therefore an integrated system between government and businesses is vital in this digital age and contemporary business environment.

Government to Citizens (G2C).

Government to citizens digital services integration is crucial to the success of digital government. It will allow citizens to have easy access to a wide variety of digital services and enable to obtain services at a time that is convenient to them and at less cost.

- Developing a citizen identification (ID) system and a system to allow individuals to monitor the administration's use of their own personal data
- Developing a corporation identification (ID) system
- Realizing comfortable and affluent lifestyles for citizens through safer, secure and reliable ICT platforms to access digital service and at affordable value.

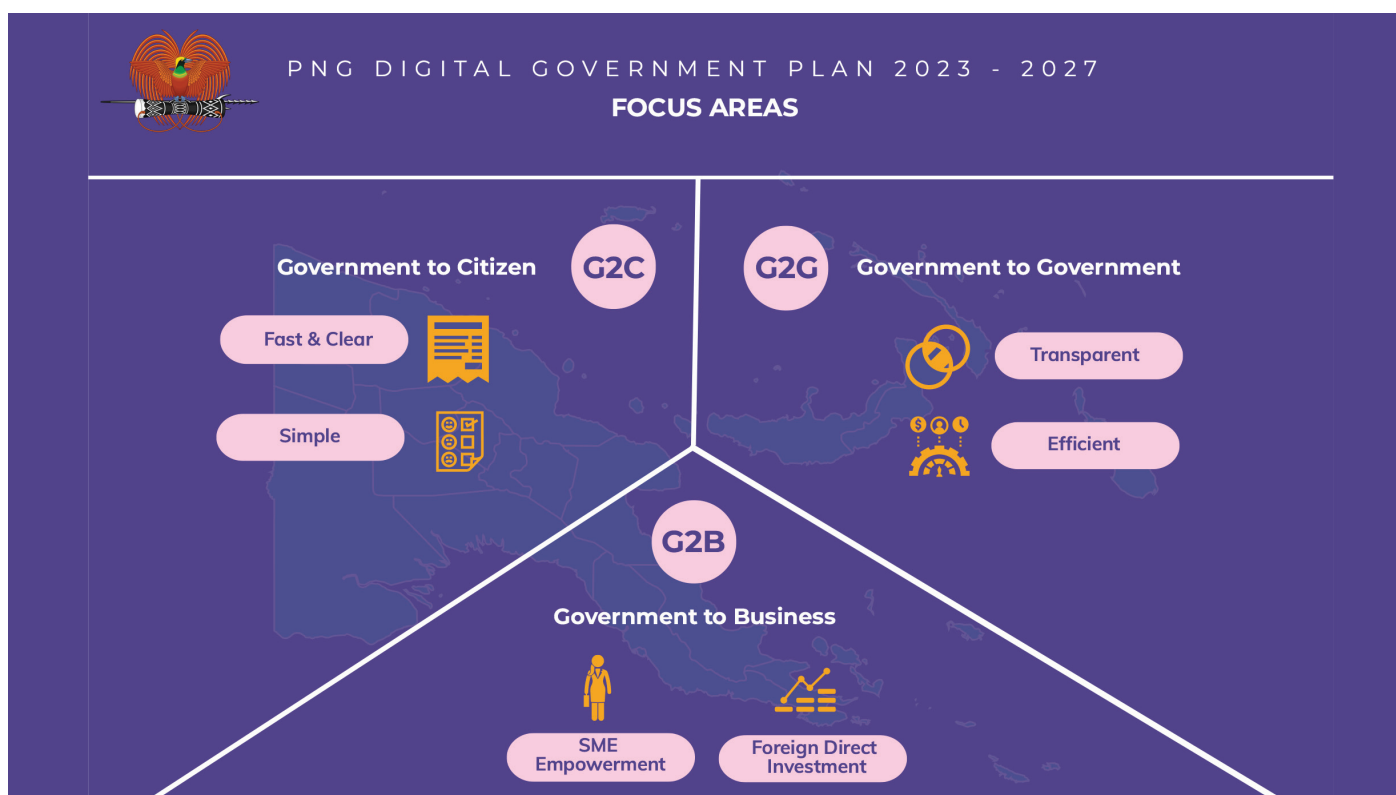


Figure 10: The Digital Government Plan 2023 - 2027 aligns priority services to three focus area: G2C, G2G and G2B

2.3 Guiding Principles

- These basic guiding principles are to ensure the Plan is based on best practices, adds value, feasible for implementation and responds well to addressing the challenges of delivering digital government services. These principles are outlined for 'Citizens and Businesses' and 'Government' respectively.

Guiding Principles



For Citizens and Businesses

Simple

Does the plan provide a User-friendly experience with ease of access to digital services, allowing stakeholder centric services that cater to the needs of the individuals, citizens and businesses for easy, seamless and secure transactions?

Accessible

Are the digital services intuitive, easy to use, and relevant to users' needs, with the convenience of users completing government transactions in a paperless, presence-less manner from start to finish, anytime, anywhere and on any device? Are they accessible to all even to persons with disabilities

Trust-worthy

Does the plan follow the 'once-only' principle that allows the citizens and businesses to give information or request for help only once? The relevant data or request will be shared with the responsible public agencies with trust and confidence, ensuring the data can be used and reused in a safe and secured environment.



For Government

Seamless

A seamless Government focuses on standardization, integration and interoperability to achieve economies of scale and respond effectively to the needs of citizens and businesses based on collaboration and networking between the government units.

Digital Identity

As the world digitalises, a digital ID is the new key enabler of the growth of digital economy and digital government, and an engaged and empowered civil society. Thus, the ability to provide reliable and independent proof of ID is essential.

The Government will embrace digital ID to identify natural persons (physical and distinct human beings), legal persons (corporate entities and distinct legal bodies) and digital persons (computers, applications, and devices that make up the modern global digital infrastructure) digitally as a critical element to leverage digitalization and delivery of digital services in a responsible way, within a safe and secured environment.

Digitized

The government believes digital technologies are an integral part of the modern administration. It will therefore ensure public servants at all levels of government have the relevant 'digital skills' to do their work and their jobs. The Government will also ensure that public organizations will be properly resourced with digital facilities, including the knowledge to utilize digital facilities, to deliver the services effectively and efficiently to the citizens.

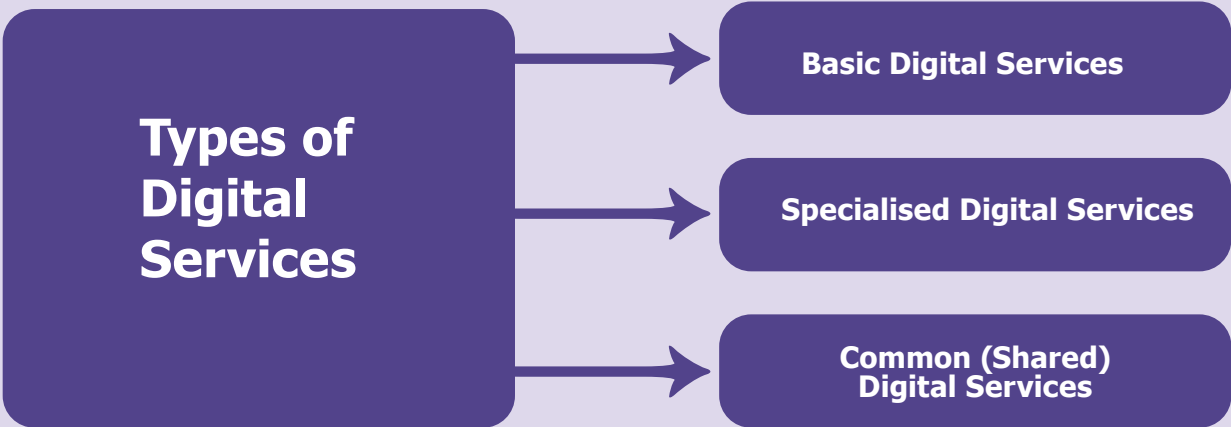
3. DELIVERY PROGRAMS AND TIMELINES

3.1 Program 1 : Digital Government Services

Introduction

Digital services are services that will be delivered using the Internet. The Plan defines three types of digital services to be designed, deployed, and used. Specialized digital services have specific development and usage requirements. Common (Shared) Digital Services are used by a wide range of stakeholders.

List of priority 'Digital Government Services' are outlined below.



Types of Digital Services considered in the Digital Government Plan 2023 - 2027

Program 1

Digital Government Services

Action Plans and Outcomes

Action 1

Identification of Prioritized Digital Government Services

Prioritized Digital Government Services are identified and highlighted in 3.1 Program 1. These services were prioritized based on its relevance to support and increase revenue generation and accelerate economic growth and improve governance and efficiency within public sector.

Action 2

Oversight of Digital Service Delivery

The Public Service ICT Steering Committee will oversee the delivery of the prioritized digital government services. The implementation of the digital services will be staggered. The Public Sector ICT Steering Committee will recommend for the immediate implementation of each digital services.

Outcomes

The digital services identified in the Plan should enable a citizen, business, investor, or public body to undertake the following online:

- Access simple and clear information sufficient to make a decision to request a particular service;
- Undertake a request for a particular service whether it be applying, registering, renewing, monitoring, or reporting;
- Facilitate a payment transaction for the service;
- Be issued the service whether it be through the form of a certificate, license/permit, letter, financial transaction, etc...



PNG DIGITAL GOVERNMENT PLAN 2023 - 2027

DIGITAL GOVERNMENT VALUE CHAIN

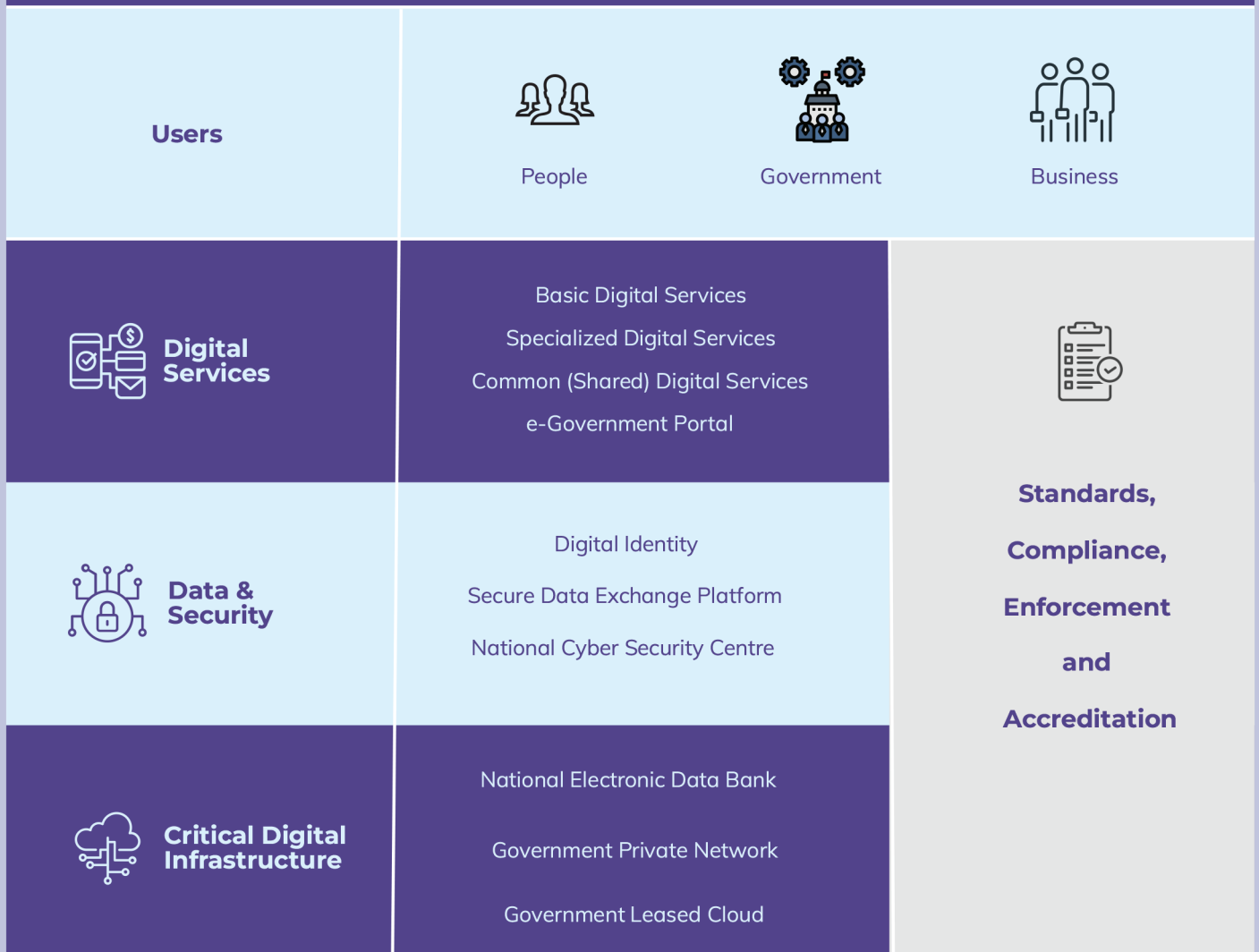


Figure 11: e-Government Portal Conceptual and Functional Framework

Action 3

Development of e-Government Portal

The e-Government Portal is a website that will offer citizens and businesses access to all public services from a single point. It will also allow users easy access to the open data portal. The PNG e-Government Portal consists of at least three single window portals and serves to integrate the digital services offered by government and become a central hub for citizens, business, investors, and public bodies to access digital services.

Services included in either of the portals are 'high value/high impact' and defined under the following criteria:

- Enable public bodies to focus on their core duties;
- Achieve lower cost and economies of scale;
- Improve user experience;
- Reduce technology footprint, maintenance and security vulnerability; and
- Address legacy system issues.

The Department of ICT will coordinate the planning of the portal and will consult with key stakeholder public agencies. The Department will ensure the PNG e-Government Portal(s) will:

- be a 'single window of entry' for citizens and clients ease of access to public services and information;
- Allow for a 'single sign-on' capability to ensure citizen or users are verified securely into the system;
- Be Accessible for persons with disabilities
- serve as an 'information hub' to push out Government Information; integrate other digital government services at the backend;
- be the front-end access points to all basic and common digital government services; and
- integrate all the priority services to a single window through a web interface with each functional service independent of each other

The Portal(s) will be designed and built to incorporate the following key features:

- digital ID and verification of users;
- Accessibility so that all citizens can access it on the same terms
- secure sign-in and authentication capability;
- online payment capability;
- user and mobile friendly;
- appropriate technology required to deliver the services
- enable seamless government including data exchange and sharing capability that will enable different government databases to inter-operate.

Outcomes

The design and the deployment of e-Government Portal(s) will deliver the following outcomes:

- (i) Digital Identity Services
Develop, improve, and implement government-led digital identification service, administered by the government, as:
- a single citizen digital identity for all citizens starting from birth
 - One of the key ways to enable identity of citizens and enabling their access to government services broad means of citizen identification and key way for them to access government and citizens services.

Develop, establish, improve, and operate whole of government data value cycle systems and processes through a secure identification mechanism for:

- data generation, collection, processing, storage, use and re-use;
- sharing across the government, and between government and business and government and citizens;
- data classification under regulation; and
- secure access and sharing based on ownership, need, role and authority.

Create Monitoring indicators to measure the outcome of the plan and effectiveness of the current digital government efforts.



THREE 'D's OF DIGITAL TRANSFORMATION



DIGITIZATION

Change from analog or physical to digital form



1 DIGITIZE INFORMATION

2 ORGANIZE INFORMATION



DIGITALIZATION

Using digital technologies and information to transform public body operations



3 AUTOMATE PROCESS

4 STREAMLINE PROCESS



DIGITAL TRANSFORMATION

Transformation of value proposition through shift in culture, workforce, and technology



5 ADOPT ARTIFICIAL INTELLIGENCE

6 PUBLIC SERVICE TRANSFORMATION



Adoption of Artificial Intelligence will focus on improving government's response to matters of national interest



Macro economic forecasting and national budget management



Detecting and responding to spread of disease and natural disasters



Monitoring and Assessing National Security Risks



Predicting Crime for effective coordination of response and resources



PNG DIGITAL GOVERNMENT PLAN 2023 - 2027

PRIORITY DIGITAL GOVERNMENT SERVICES

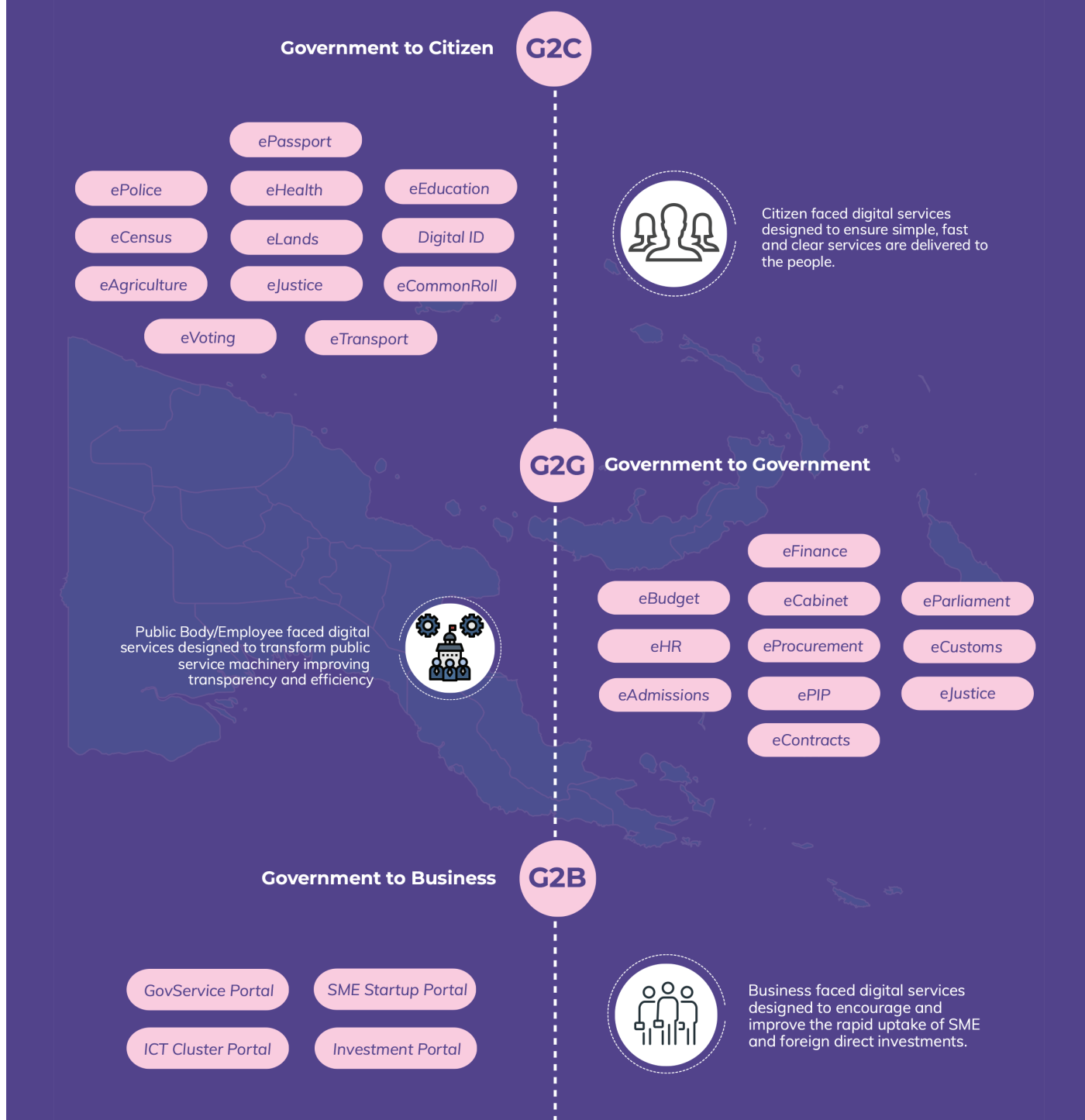


Figure 12: Priorities G2C, G2B and G2G Digital Services to be offered on the Papua New Guinea eGovernment Portals

Program 2: Cyber Security and Cyber Safety

Introduction

Cyber security is critical to enable safe and secure delivery of digital services. Cybersecurity affects everyone and as a result it is a shared responsibility for all to exercise cybersecurity best practices. Targeted awareness raising initiatives will be implemented through the mobilization and partnership with civil society, academia, and other interest groups across Papua New Guinea, to enable and empower end-users to keep themselves and their organizations safer online. The GoPNG plans to partner and collaborate across all stakeholder groups, including private sector and civil society, academia and technical community to promote best practices and develop strategies to overcome market barriers to the adoption of secure technologies;

- collaborate with the private sector, civil society and the cybersecurity community to promote awareness on cyber hygiene and cyber safety;
- work with all Ministries, including the Ministry of Education and the Ministry of Higher Education to include cybersecurity and cyber safety in future curriculum that can equip students with relevant cyber knowledge and etiquette, and further generate interest to pursue cybersecurity professional careers in PNG.

The Plan captures the need to establish a specialized cybersecurity institution as well as governance mechanism to facilitate a national coordinated effort". Cyber Security is the responsibility of all; therefore, all public bodies must make the necessary efforts. Standards and guidelines will be established to support these efforts.

Program 2

Cyber Security & Cyber Safety

Action 1

Operationalization of Cyber Security Governance

The Department of ICT will facilitate a Cyber Security Coordinating Committee comprising key security agencies, and in collaboration with Office of Security Coordination and Assessment at the Department of Prime Minister and NEC, to guide PNG's cyber security initiatives and efforts consistent with the approved Cyber Security Policy 2021.

Action 2

Establishment of Specialized Cyber Security Institutions

The National Cyber Security Centre (NCSC) will be established to support the delivery of digital services contained in the 'Digital Government Plan'.

The NCSC will have two components:

- the Computer Emergency Response Team (CERT) and
- Cyber Security Operations Center (CSOC).
- CERT is responsible for cyber security incident response and onsite investigation while CSOC is responsible for the use of technology to monitor & analyze alerts and defend from Cyber threats

Action 3

Formulation of Cyber Security Strategies, Plans and Legal Framework

- Department of ICT will coordinate the development of a cybersecurity strategy, legislation and plan to guide the establishment of specialized cyber security institutions and the development of PNG's national cyber capabilities and capacities.

Action 4

Establishment of cybersafety committee and strengthening initiatives

- to tackle misinformation cybersafety committee will be established to promote cyber safe and secure culture and society through awareness, studies and measures.
- Department of ICT will tackle disinformation and misinformation through coordination and beefing up Social Media Management Desk tools and processes

Action 5

The implementation of the cyber security action plans will archive the following outcome:

- Central coordination, collaboration, and consistency in the implementation of PNG's cyber security initiative and efforts. Agencies (Public and Private) co-operating to achieve National Cyber Security efforts and goals;
- PNG's national cyber security capacities and capability are built to level par with international best practices;
- Increase in the use and uptake of digital government services and participation in the digital economy as a whole;
- High protection of critical digital infrastructure and services 7/24;
- Creating efforts to protect national cyberspace.

3.3 Program 3: Standards, Compliance, Enforcement, Accreditation Introduction

Introduction

Key factor in digital transformation is the integration and interoperability of systems to (.) This enable (enables) data to be shared across different systems and allows inter-actions and collaboration between G2G, G2C and G2B. The GoPNG plans to partner and collaborate with international partners to promote open, industry-driven standards and risk-based approaches to address cybersecurity challenges, including cloud security platform. The GoPNG will draw on established international standards in the development of its national standards to enable harmonization with others, and to ensure that Papua New Guinea benefits from scalable technology solutions developed to meet those international standards.

Program 3

Standards, Compliance, Enforcement, Accreditation

Action Plans and Outcomes

Action 1

Development of Digital Government Standards

Relevant digital standards will be developed as a set of best-practice principles for designing and delivering government digital services that are simple, clear, reliable, and trustworthy for citizens and businesses. Aside from regulations, the DGA2022 makes it mandatory for the public bodies to adopt standards, specifications, guidelines, or codes of practice as necessary, for the effective implementation of the Act under section 64.

The types of digital standards covered by the DGA2022 are:

- standards for government private cloud infrastructure;
- national electronic data bank;
- central electronic data repository;
- access to central electronic data repository;
- provision and accessibility of digital services;
- open data;
- shared services;
- moving to paperless [environment];
- classifications of electronic data;
- electronic data collection and storage;
- electronic systems integration; and
- electronic data sharing.

Action 2

Compliance and Enforcement of Digital Service Standards
A separate Standards, Compliance and Enforcement Framework document will be developed. A regulatory triad and business process flowcharts [see appendices] depicts the standards, compliance, and enforcement procedure.

Public bodies through their respective digital transformation officers are expected to contribute their strategic and technical support to develop and work towards compliance with relevant digital government standards.

Outcome

The following outcomes will be achieved through the implementation of the Program actions plans:

- Interoperability across whole of government; and
- Real-time sharing of data within government, with citizens and businesses for decision-making and planning

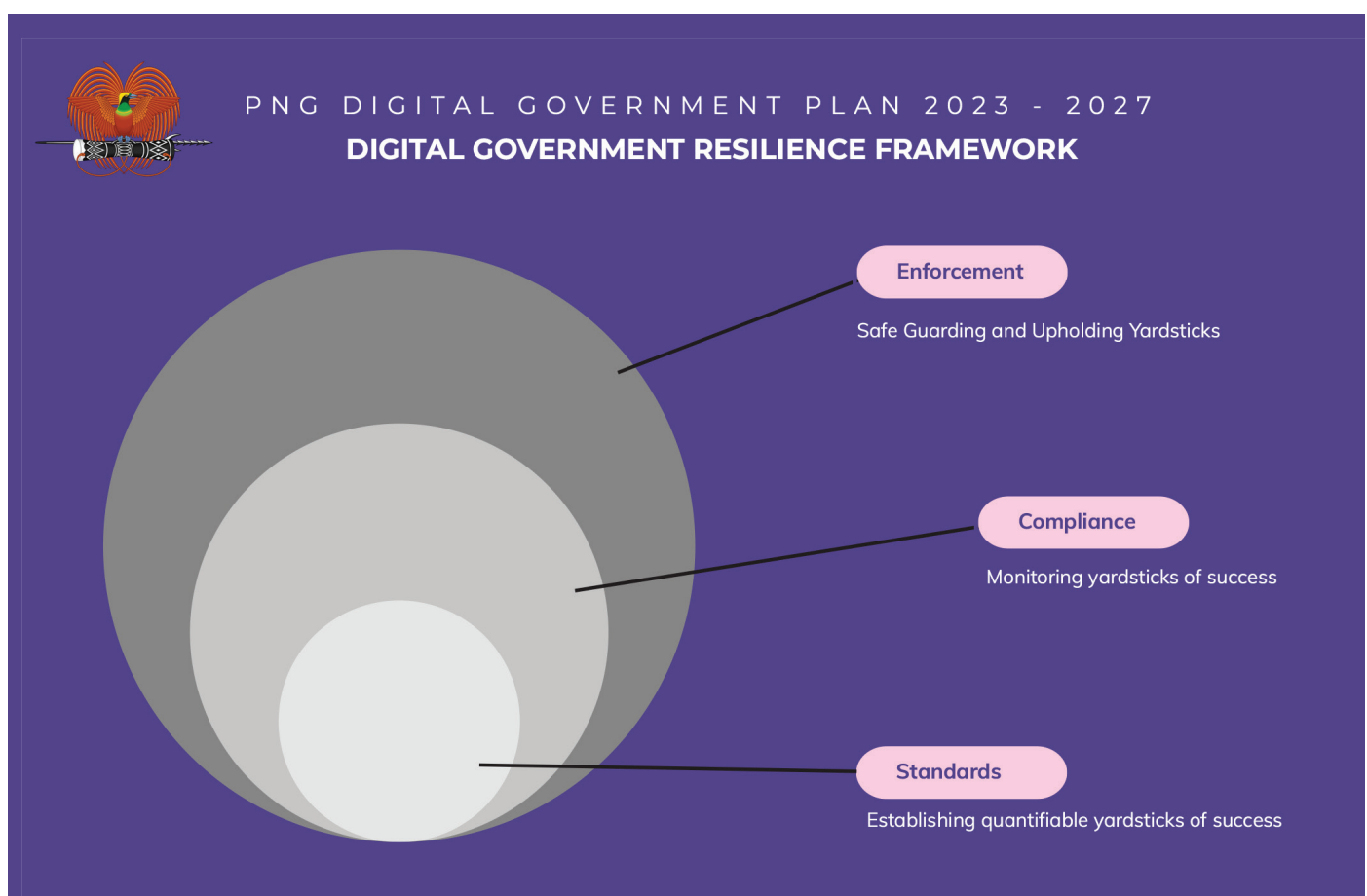


Figure 13: The Resilience of Papua New Guinea's Digital Government is based on the three layers of standards, compliance, and enforcement.

3.4 Program 4: Digital Government Infrastructure

Introduction

Critical digital infrastructure underpins the delivery of the Government's digital services. Rolling out modern and resilient infrastructure with sufficient capacity is key to the delivery and take-up of digital services.

Digital services contained in the Plan will be supported by a modern and resilient Critical Digital Infrastructure including:

- the Government Leased Cloud;
- Government's Private Network; and
- the Internet Exchange Point.

Program 4

Digital Government Infrastructure

Action Plans and Outcomes

Action 1

Deployment of Government Leased Cloud

A Government Private Lease Cloud will be negotiated by the Government for the whole of government usage. GoPNG will establish a register of accredited vendors for the Government Leased Cloud to ensure that cloud service providers that adhere to international standards and best practices are used by agencies or departments. The planning, design and deployment of the infrastructure and associated cloud-based services will achieve the following outcomes:

- Reduce the Public Sector hosting operational cost and cost associated with upgrades of legacy technologies.
- Adopt a Cloud First Approach to digital service delivery to enable innovation across sectors within government and industry;
- Improve public sector resilience, business continuity during crisis and recovery capabilities including hybrid model of hosting to enable the backup process of critical government data for accessibility and retrieval
- Allow public sector IT division to keep up with technological development
- Better technological and analytical capabilities to enhance public sector performance and productivity

Parallel to this, an accreditation process will be established and enforced to guide use of alternate cloud technology by requiring agencies to evaluate safe, secure, cloud computing options before making any investments.

Action 2

Design and Deployment of the On-Premise Data Center(s)

In the longer term when digital services reach a reasonable maturity level, the government will revisit options of investing in an independent on-premise data center. A cloud hybrid model will be considered. This design and deployment will:

- enable data to reside between both the hosting cloud infrastructure and on-premise data center based on the classification of data for government data management, localization and protection; and
- enable on-premise data center and the hosted services to be on the internal government network that will be accessible anytime;
- Ensure data localization and data loss prevention, quick retrieval of localized data, and cost reduction.

Action 3

Design and Deployment of the Private Government Network

Stage One will be the Deployment of 'Software Defined Wide Area Network (SD-WAN) - Overlay Network'. This deployment intends to achieve the following outcome:

- A transitional arrangement as a network link for the delivery of digital services to government bodies where it will reduce the overhead costs and increase network performance, improve application performance and increase agility whilst government dedicated network is in construction;
- SD-WAN network to be the government's redundant network;
- It will optimize government users' experience and efficiency for SaaS & public cloud applications.

Stage Two is the Deployment of the IP Core Network. This will be the foundation of the Government Dedicated network - Underlay Network. In the medium to long term, phase 2 deployment intends to achieve the following:

- reduce the transmission cost currently experienced by government bodies;
- improve the quality of service and reliability of connectivity and accessibility of government digital services at national, provinces and the districts; and
- provide connectivity, security and automation of the delivery of government to government (G2G), government to business (G2B) and government to citizens (G2C) where all government bodies will leverage.

Action 4

Design and Deployment of the Internet Exchange Points (IXPs)

An internet exchange point is a hub that plays a critical role in making local Internet faster and more affordable 1.

Government will utilize the IXPs by working with the current IXP managers to significantly improve the current infrastructure and provide much more traffic and content to the users of the system and create shorter, more direct routes for Internet traffic. This will provide a more affordable alternative to sending local Internet traffic abroad thus promoting greater interactions and transactions between G2G, G2C and G2B2.

By utilizing the IXP, the Government anticipate achieving the following outcomes:

- promote collaboration and partnership with ISPs (Internet service providers), content delivery networks and range of local and international operators, to trigger innovation and more business opportunities;
- Reduce cost and make internet cheaper and improve local users' quality of access by providing more-direct network connections for local content producers;
- improving the quality of service for citizens and businesses by improving access speed for local contents, ensuring resilience and business continuity at all times;
- spurs innovation and creates business opportunities and encourages local people to produce more relevant local content and applications3.

To ensure effective collaboration by all parties through the IXP, the Government will:

- create a regulatory environment that is conducive to open, settlement-free peering, as opposed to traditional transit arrangements;
- expanded the IXP to allow for additional regional Point of Presence (PoP) in the three regional metropolitan areas in the country; and
- interconnect its servers with other companies at the IXP allowing it to better localize traffic to users in the PNG Government network.

Action 5

Development of Digital Government Infrastructure Strategy and Plan

The National ICT Roadmap 2018 and the DTP2020 identifies 'Digital Infrastructure' as a key pillar and subsector of the digital sector.

The Government will develop a comprehensive 'Digital Government Infrastructure Strategy and Plan'. The Digital Government Infrastructure Plan will complement the delivery of digital services captured in the Digital Government Plan.

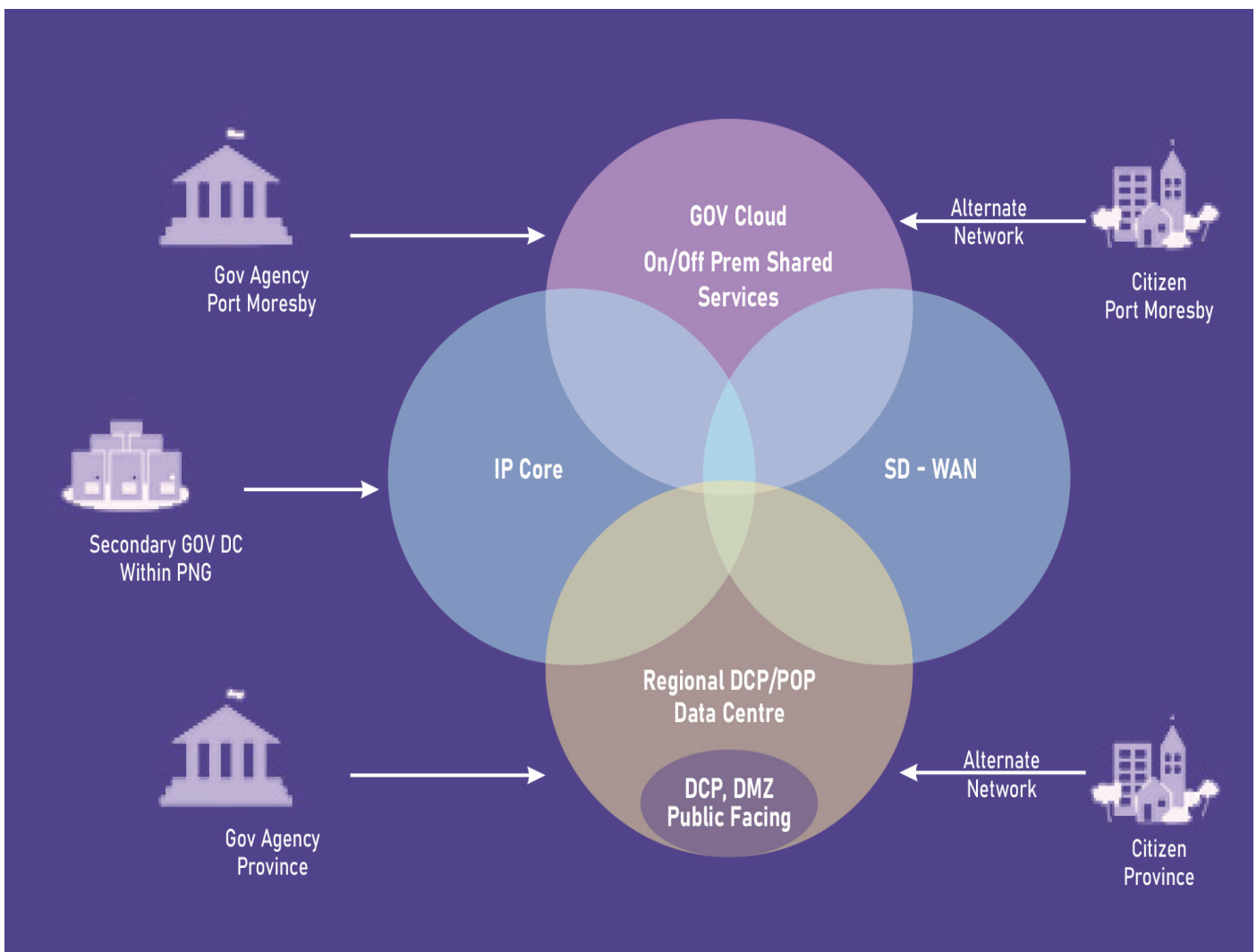


Figure 14: Digital Government Infrastructure (Hosting-hybrid), Government Network & IXP

Timeline

The Delivery Programs contained in the Plan will be implemented on a 3- phased approach:

- Phase 1 is a short term from initial period up to three years (0 – 3);
- Phase 2 is a medium term and covers a period of 3-5 years; and
- Phase 3 is a long-term development plan for a 5 years period.

Phase 1

Phase 1 will initially focus on budgetary and structural re-alignment at a national and sub-national level while establishing baseline data. The following activities will be undertaken by all public bodies:

- Realign national and sub-national budget accordingly.
- Realign all corporate plans ensuring 'digital government' key result areas incorporated.
- Commence self-assessments and gauge on their current ICT maturity state.

For digital services, Phase 1 will focus on delivery in the following areas, and as identified in the list of priority digital services (Program 1 - 4):

- Digitize and develop essential and critical government digital services focusing on citizen service delivery and satisfaction;
- Establish the Government Lease Cloud while commencing planning Digital Government Infrastructure;
- Commence implementation of the National ICT Cluster Policy while formulating national policy on digital skills and data protection;
- Establish and make awareness of digital service, digital infrastructure, and cyber security standards, guidelines and procedures;
- Establish critical enabling platforms (Figure 7) to enable integration and interoperability of systems supported by relevant standards, guidelines, and procedures.

Phase 2

Phase 2 will build on the baselines and initial successes of Phase 1 and firmly scale the positive outcomes of Phase 1. Key activities will involve:

- Commence complete integration of paperless trade windows for all public bodies
- Increased automation and integration within and between public bodies
- Increased usage of ICT and digital government standards across all public bodies
- Growing Capacity in managing cybersecurity and cyber-crime within PNG

Phase 3

Phase 3 envisages a high maturity level across the whole-of-government and public service delivery with:

- Digital values, principles and propositions adding value to its citizens, business, government employees and other governments; and
- Digital innovation becoming an economic drive for government revenue and service delivery, governance and foundation pillar for digital economy advancement.
- 2027 should see the introduction of e-Voting utilizing digital identification verification services



PAPUA NEW GUINEA DIGITAL GOVERNMENT PLAN 2023 - 2027

Our Vision

Digital transformation that makes government more effective, improves service delivery, and fosters inclusive social and economical development because of a smart, networked, and well informed society.

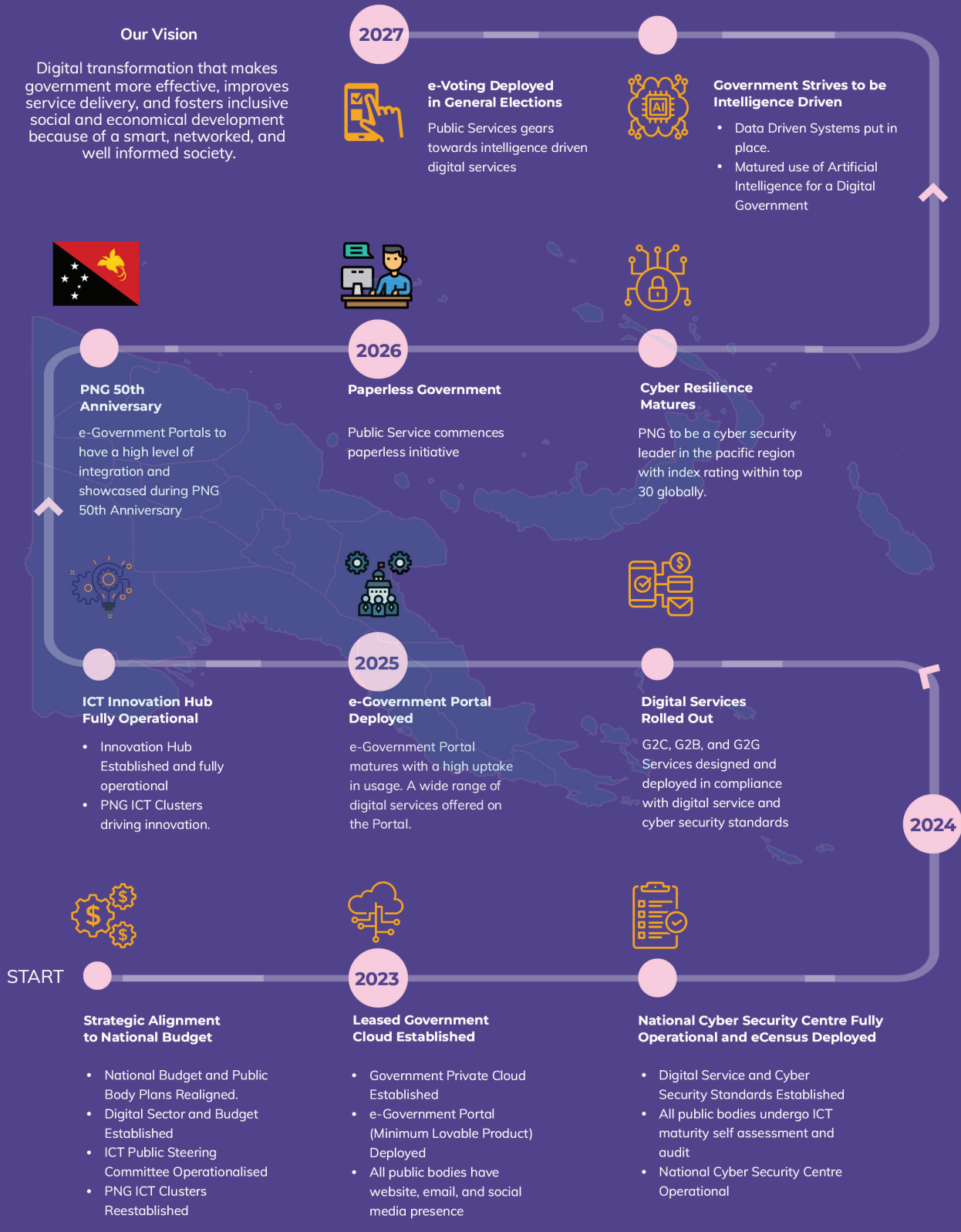


Figure 15: Delivery Timeline of the PNG Digital Government Plan 2023 - 2027

Delivery Outcomes by Program Areas

	Phase 1 Outcomes			Phase 2 Outcomes	
Program Areas	2023	2024	2025	2026	2027
Program 1: Digital Government Services	All public bodies to have basic email, social media, and website presence	All public bodies have completed ICT maturity self-assessment	Uptake and improvement of basic digital services across all public bodies	All public bodies to phase in to paperless workflow	Uptake in integration and automation
e-Government Portal	Minimum Lovable Product, designed, developed, and deployed..	All core G-G shared Digital Services G-C digital services designed, developed, and deployed	e-Government Portal usage uptake increased through adoption of additional services and awareness	Uptake in integration and automation	Uptake in integration and automation
Program 2: Cyber Security	National Cyber Security Strategy published Cybersecurity Awareness	National Cyber Security Agency established All public bodies to have pursued complied to cyber security standards	National Cyber Security Legislation developed Capacity in schools and university improves	National Cyber Security Agency Established Capacity in cyber research improves	Cyber Security Index to have improved to top 50 globally Another Cyber security institute establishment depending on the need to improve cyber security nationally
Program 3: Standards, Compliance, Enforcement, Accreditation	Digital Standards, Guidelines, procedures, and regulations developed	Increased awareness and training in standards guidelines and procedures	Increased Awareness and training in Standards, guidelines, and procedures Improved compliance across all public bodies	Increased Awareness in Standards, Improvement in Compliance	Post-legislative scrutiny of the DGA2022 conducted five-yearly commencing on the fifth anniversary and every fifth anniversary of enactment to evaluate the impact of the Act.

Figure 16: Delivery Outcomes by Program Area. (Note: Program 5: Digital Government Infrastructure outcomes to be further articulated in a separate Digital Government Infrastructure Plan.)

4. INVESTING IN THE PLAN

4.1 Program Areas

Successful implementation of the Plan hinges on the Government's capability to align its medium term and annual budgetary framework to the program delivery areas in the medium-term revenue and strategic plan, and the required investment levels identified in this Digital Government Plan.

The Digital Government Act of 2022 mandated the creation of a Digital Government Plan 2023 – 2027. The Plan provides for the establishment of a Digital Sector and the adoption of a digital government sub-sector. The Plan provides the delivery framework for the digital government sub-sector.

The four program areas under the Digital Sector are:

- Program1: Digital Government Services
- Program2: Cyber Security
- Program3: Standards, Compliance, Enforcement and Accreditation
- Program4: Digital Infrastructure

To grow the Digital Sector, the following budgetary reforms are necessary:

Establishment of digital sector and four program areas within the National Budget commencing 2023; and Consolidation of all existing/ongoing digital projects into the four program areas (refer to Annex 3 for table of existing Public Investment Projects).

4.2 Coordinated Investments

Program 1: Digital Government Services, Projects include G2C Digital Services, G2G Digital Services, G2B Digital Services, and Digital ID and Biometrics.

Project 1: Digital ID and Biometrics (refer Table 4: Investment Components).

Allows for the consolidation and streamlining of the procurement and use of biometric technology and digital service platforms to collect primary data for NSO, NID Project, Electoral Commission, and all of Social Law and Justice Sector.

Project 2: e-Voting

An important investment with an intended outcome that one digitized vote must be less than half of one physical vote over the next five-year cycle to 2027.

Project 3: e-Government Portal

A key digital service project which constitutes the design and deployment of the e-Government Portal and the Secure Data Exchange Platform.

Program 2: Cyber Security covers four main projects covering G2G, G2C and G2B

Project 1: Establish and operationalize the National Cyber Security Centre

Project 2: Strengthen the Cyber Emergency Response Team.

Project 3: Establish of Cyber Coordination Centre

Project 4: Establish of Cyber Security Capacity improvement and cyber safety capability program

Program 3: Standards, Compliance, Enforcement and Accreditation is a core activity of the Government and will be rolled out as a recurrent activity with the support of bilateral and multilateral partners.

Program 4: For digital infrastructure investments, the Plan requires all government infrastructure including government broadcasting, broadband, and network investments to be consolidated and streamlined under the respective Digital Sector Program Areas save the Government a projected savings of K700 million. The ongoing digital infrastructure projects currently include:

- Rural Telecommunication Project;
- Analog to Digital Broadcasting Project;
- Kumul Satellite Project;
- Government Private Network; and
- Private Leased Cloud.

Over the last decade, there has been duplication of investments in various digital projects and programs all for essentially collecting the same primary data, including:

- National Statistics Office - K296 million;
- PNG Electoral Commission - K340.7 million;
- National Identification Project - K437.5 million;

These investments amount to duplicated investments to the amount of K733.5 million. The same assessments can be made for digital infrastructure investments in the Integrated Government Information System (IGIS) and the Data Centre Projects under PNG DataCo Ltd.

The Digital Government Plan requires a vertical coherence and coordinated investment approach between the five Program Areas to:

- ensure that investments are not duplicated;
- deliver high quality of digital services

The 2023 investment ceilings for projects and activities within the five Program Areas is estimated at a minimum level of K245 million. Comparatively, 2022 budget allocation for digital service projects stands at a total of K285 million. Consolidation of the K285 million ongoing projects (see Annex 3) is a critical step to aligning the National Budget to the Digital Government Plan.

4.3 Investment Coordination Strategy for all Public Bodies

It is the Government's objective through the Digital Government Act 2022 to centralize the coordination of digital projects by public bodies. A strategy going forward will be to:

- coordinate all new and ongoing projects under respective program areas and draw down from respective consolidated digital projects commencing 2023
- new digital projects will follow the existing PIP process and will be required to undergo an additional vetting process to ensure it complies with digital government standards, guidelines, and procedures; and
- A separate guidance document will be developed for public bodies and will be the basis for digital projects vetting and clearance process.

4.4 Investment Components

Investment Components (amounts in millions of kina)	2023	2024	2025	2026	2027	Total
Program 1: Digital Government Services						
Project 1: Digital ID & Biometrics	30	33	35	36	38	172
Project 2: G2C Digital Services	30	33	35	36	38	172
Project 3: G2B Digital Services	20	22	23	24	25	115
Project 4: G2G Digital Services	20	22	23	24	25	115
Project 5: eGovernment Portal	15	17	17	18	19	86
Project 6: Secure Data Exchange Platform	10	11	12	12	13	57
Program 2: Cyber Security		-	-	-	-	-
Project 1: National Cyber Security Centre	20	22	23	24	25	115
Project 2: Cyber Emergency Response Team	5	6	6	6	6	29
Project 3: Cyber Coordination Centre	10	11	12	12	13	57
Project 4: Cyber security capacity and cyber capability	10	11	12	12	13	57
Program 3: Standards, Compliance, Enforcement and Accreditation						
Program 4: Digital Infrastructure						
Project 1: Government Private Network	42	46	49	51	53	241
Project 2: Government Private Lease Cloud	10	11	12	12	13	57
Project 3: Rural Telecommunication	70	105	158	236	300	869
Project 4: Digital Broadcasting Infrastructure	20	22	23	24	25	115
Project 5: National Broadband Infrastructure	10	11	12	12	13	57
Project 6: Kumul Satellite Infrastructure	150	165	173	182	191	861
Project 7: Bougainville ICT Infrastructure support	25	25	10	10	10	80
Annual Total (K million)	497	572	632	734	822	3,257

Figure 17: Investment Components for the Digital Sector between 2023 - 2027

5. DELIVERY MECHANISM

The Government recognizes that to deliver successfully on the Plan, partnership and collaboration with stakeholders within the industry and businesses is key.

A governance framework has been established taking into consideration the nature of the programs, the surrounding circumstances and factors that influences and drives the program in both the short, medium, and long term. Considerations include:

- a whole of Government Approach;
- a program to govern and manage many overarching digital projects;
- a large number of public bodies and stakeholders to be managed;
- creation of trust and confidence for a whole of government approach;
- continuous monitoring and course correction;
- ongoing alignment to business objectives is mandatory; and
- funding and spending critical decisions need to be tackled timely and properly;

5.1 Governance Structure

The ownership of the Plan and its implementation rests with a high-level authority. The sponsor of the program owns and oversees the functions related to funding and strategic directions as follow:

The DICT will be the Program sponsor;

The Public Service ICT Steering Committee (PSICTSC) will oversee the whole-of-government delivery;

A DevOps Function and Project Management Office (PMO) will be established and located within DICT to provide specialized technical services and agile project management;

The Digital Transformation Officers are to be appointed in each public body and will deliver and provide advisory support to the PSICTSC;

Basic digital service initiatives will be owned by the respective public bodies and will be supported by the PMO while common and specialized digital services including the eGovernment Portal will be owned by the PSICTSC; and

Various Inter-Agency Working Groups will be established through the Public Service ICT Steering Committee as and when required.

5.2 Roles and Responsibilities

5.2.1 Public Service ICT Steering Committee

The PSICTSC is established under the DGA2022. Section 12 of the DGA2022 sets out the functions of the Committee as follows:

- to facilitate the formulation, implementation and review of the Digital Government Strategic Plan across all public bodies;
 - to serve as a government forum for awareness on ICT policies, laws, programs and projects in relation to public bodies;
 - to assist the Departmental Head to identify and evaluate public bodies' investments in digital infrastructure and digital government programs and projects; using the National ICT Investment Framework
 - to evaluate ICT Project Designs of public bodies and make recommendations to the Departmental Head to approve or reject a design;
 - to assist the Departmental Head to identify ICT policy gaps and make recommendations to address them;
 - to assist the Department of ICT to implement the ICT policy directions of the government; and
 - to perform any other technical and advisory function as is necessary in connection with this Act.
- To support the functions of the PSICTSC, Project Management Office, Units and Working Groups will be formed to implement the decisions of the PSICTSC.

5.2.2 Project Management Office (PMO)

The PMO will be a directorate under the DICT and will support the implementation of the Plan through:

- monitoring project delivery;
- managing the relations with vendors;
- managing the procurement process;
- ensuring compliance with policies and standards;
- auditing projects at hand over; and
- providing knowledge management and sharing for areas related to project management.

The PMO will draw its pool of resources from both the DevOps Wing of the DICT and the PNG ICT Clusters. The PMO will assign tasks based on workload, project nature and project level of maturity. The Office will contain experts in agile project management with expertise in cloud technology, application development, business process and cyber security. It will also provide for control

requirements to ensure consistency in the implementation across the whole of government. This office will be mainly responsible for the following:

- Liaising with the implementing Ministries and its Departments to facilitate the integration of the projects' outputs consistent with the Delivery Program Outcomes;
- Managing and monitoring the implementation of the sector programs by assisting the Ministries and its Departments and other stakeholders;
- Gathering and reviewing work plans from implementing Ministries and its Departments, and monitor the implementation of the different tasks defined in the Plan;
- Periodically report projects' progress to the Program Governance Board with detailed analysis of status and deliverables;
- Reviewing projects' deliverables and ensure deliverables specifications and quality meet those agreed in the contract signed with the service or technology provider;
- be involved in reviewing service level agreements for maintenance and operation contracts to validate compliance versus agreed terms and conditions from technical perspective;

5.2.3 Inter-Agency Working Groups

Inter-Agency Working Groups may be established through the PSICTSC to assist in formulating strategies and coordinating work on national policies, cross-agency initiatives, and public body digital projects. The Working Groups will assist in updating the key technical policies and standards by working closely with the technical specialists under the PMO. Working Groups on key national initiatives, including Information Security, will be formed and other Working Groups will be formed as need arises.

5.2.4 Digital Transformation Officers

All public bodies are to appoint their own 'Digital Transformation Officer', per the requirement under Section 9 of the DGA2022 with functions defined as follows:

- to coordinate with the DICT and digital transformation matters; and
- to facilitate integration and interoperability of the systems of the public body; and
- to facilitate delivery of digital services by the public body; and
- to manage the electronic data in the public body; and
- to provide ICT reports and feedback on a quarterly basis to the Public Service ICT Steering Committee.

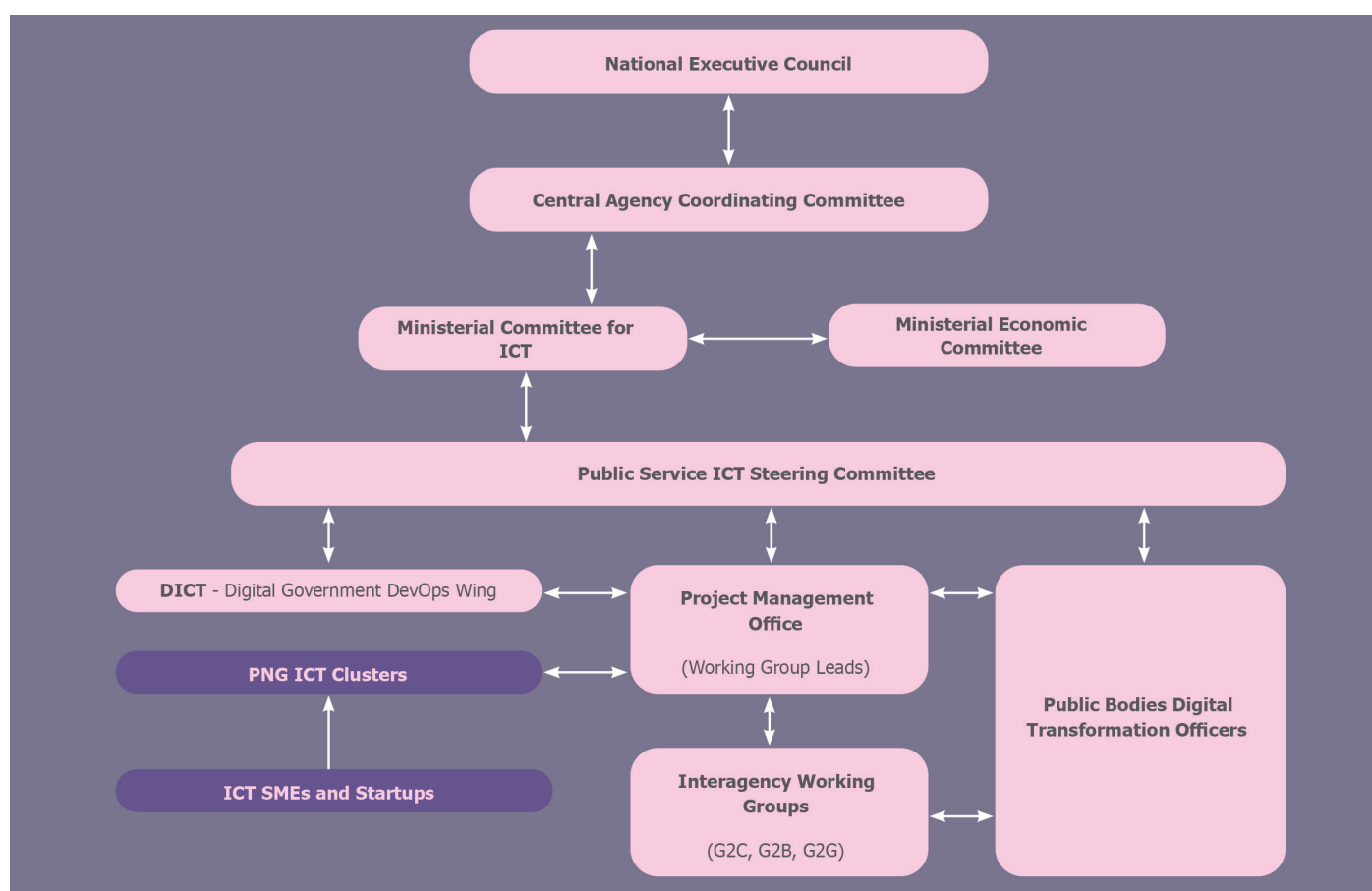


Figure 18: Governance Structure for the delivery (and M&E) of the Digital Government Plan 2023 - 2027.

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- to manage the electronic data in the public body; and
- to provide ICT reports and feedback on a quarterly basis to the Public Service ICT Steering Committee.

5.4 ICT Clusterization

The Government recognizes that to deliver successfully on the Plan, partnership, and collaboration with stakeholders within the industry and businesses is key. The Cluster Model is an attractive approach to deliver on the Plan and rapidly mature the ICT industry.

A cluster initiative is defined as an entrepreneurially driven hybrid organization engaged in collaborative actions by groups of companies, research and educational institutions, government agencies and others, to improve the competitiveness of a specific cluster by:

- raising the awareness of companies within a cluster and creating more effective platforms for interaction;
- and providing a platform for a better dialogue between the private and the public sector when making decisions about how to improve the cluster-specific business environment.

Cluster initiative is both an organization and a network. Cluster initiatives combine organizational and networking characteristics to different levels and can transform from organization to network and vice versa depending on the context and circumstances.

The Government will look at leveraging an ICT Cluster Model to deliver primarily on the Digital Services and the eGovernment Portal build.

Roadmap to develop cluster initiatives

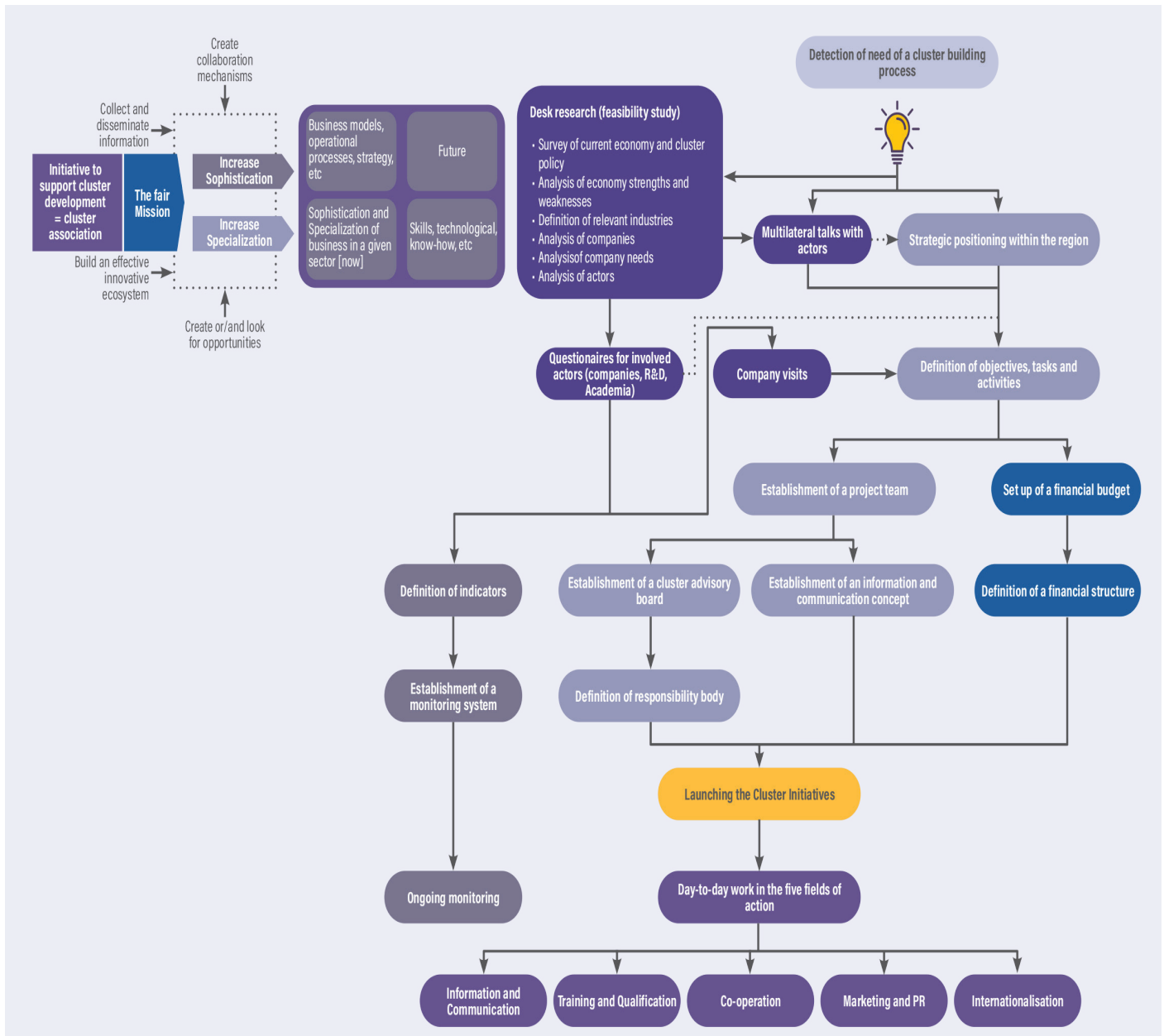


Figure 19: ICT Clusterization Development Roadmap

6. MONITORING & EVALUATION

A Monitoring and Evaluation (M&E) framework is developed and captured in this Plan to track, monitor, and evaluate the implementation of the Act. An annual M&E report will be published with recommendations to improve the implementation and to provide accountability to stakeholders on achievements of set targets and impacts.

The stages of the implementation will also be appropriately monitored and evaluated against their set Targets and Impact Indicators. The target indicators will be guided by the digital government priority services (G2G/E, G2C, & G2B) (Figure 6).

The Plan shall be reviewed and prepared every 5 years. However, this plan is a living document due to the dynamics of the evolution in the digital space therefore the plan shall be reviewed and updated accordingly depending on the status of improvement and challenges identified against the set targets and impact indicators.

The M&E will closely monitor if the plan is on track towards achieving the set target. All stages of implementation that are monitored respectively will be reported effectively to ensure the implementation of this plan is within its expected timeframe and within its required budget.

6.1 Monitoring and Evaluation Cycle

The frequency in which the plan will be monitored and evaluated will depend on the target set through the DG priority services. The monitoring will be a continuous activity and the frequency of data collection will be on a quarterly and bi-annual basis. The frequency of the evaluation of the DG plan will be annually for the period specified to measure if the set target is achieved. The evaluation will be targeted against the annual targets and to see the impact the service delivered had in terms of revenue (tax and non-tax revenue) generation and quality of digital service delivered.

6.2 Monitoring and Evaluation Reporting

All aspects of the implementation of the Digital Government Plan will be thoroughly monitored and evaluated by the responsible Department of ICT's Research, Monitoring & Evaluation and PMO. As per the Digital Government Act 2022, the Secretary and the Public Service ICT Steering Committee shall be advised quarterly and bi-annually on the progress towards the annual set targets.

ANNEXES

Annex 1: Measuring the Economic and Fiscal Impact of the Digital Government Plan.

Economic Impact and Fiscal Impact Implications of the Digital Government Plan.

The estimates of the economic and fiscal impacts presented in the prior sections correspond to the baseline scenario, where it was assumed that the Plan would increase by 1% the number of mobile Internet subscribers by 2027. We developed the low and high scenarios by assuming that the Plan would increase the number of mobile Internet subscriber by 0.5% (low scenario) and 1.5 % (high scenario). This gave us three scenario estimates for the economic impact on the GDP.

	USD Million		
	Low	Baseline	High
P.V. of increased GDP			
(2032 -2023) year time horizon -10	146.02	292.15	438.38
Effect on perpetuity	485.60	971.70	1,458.29
P.V. Increased General Gov. Revenue			
(2032 -2023) year time horizon -10	16.30	32.62	48.95
Effect on perpetuity	54.61	109.27	163.99
P.V. increased Tax Revenue			
(2032 -2023) year time horizon -10	14.83	29.68	44.53
Effect on perpetuity	49.68	99.42	149.20

Figure 20: Scenario analysis: Present value of the economic and fiscal impacts

The baseline economic impact estimate of the Plan's implementation indicates that over the next 10 years the Plan will induce an increase on GDP equivalent to USD 292 million in present value terms.

The baseline fiscal impact estimate indicates that over the next 10 years the Plan will produce an increase on general government revenue equivalent to USD 32.6 million in present value terms.

Therefore it is critical for GoPNG to invest in digitizing its systems, processes and services for whole of government (G2G), to the business (G2B) and the citizens (G2C) not only to achieve full efficient and effective service delivery but increase government revenue by cutting extra costs and foster innovation in the Digital Economy in order to grow the PNG GDP over the next 10 years.

Annex 2: Business Processes: Standards Approval, Compliance Review and Enforcement

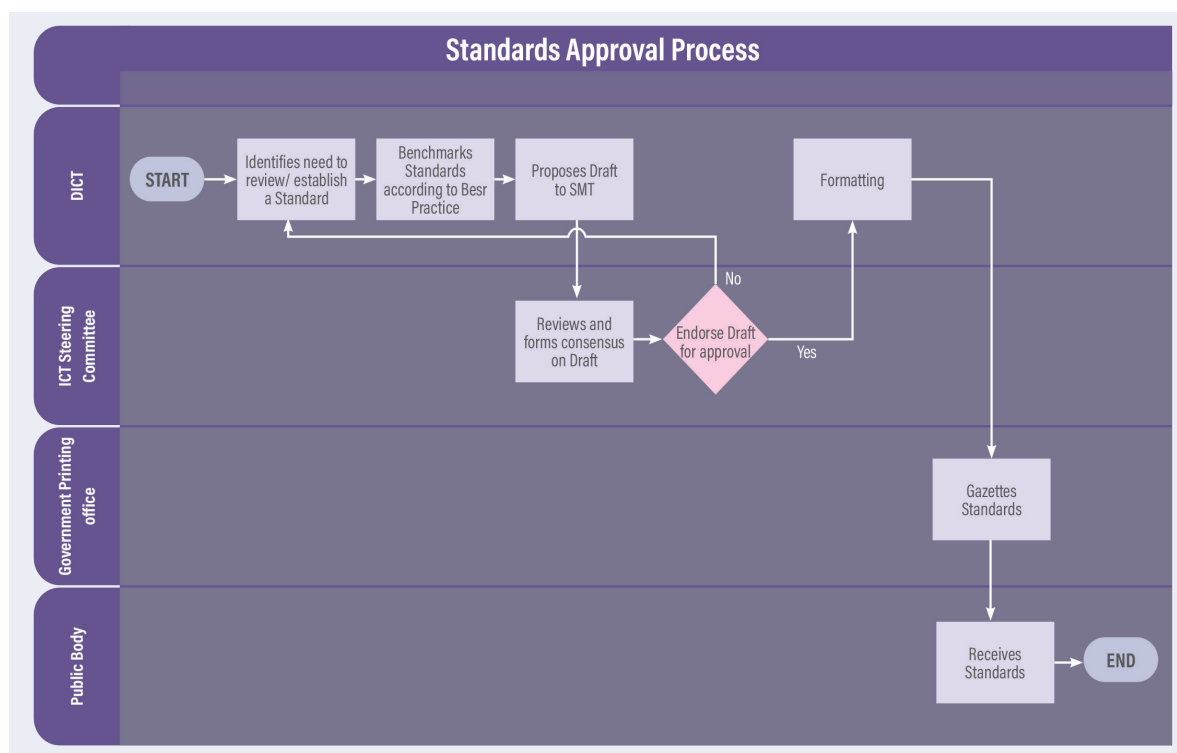


Figure 21: Standards Approval Process

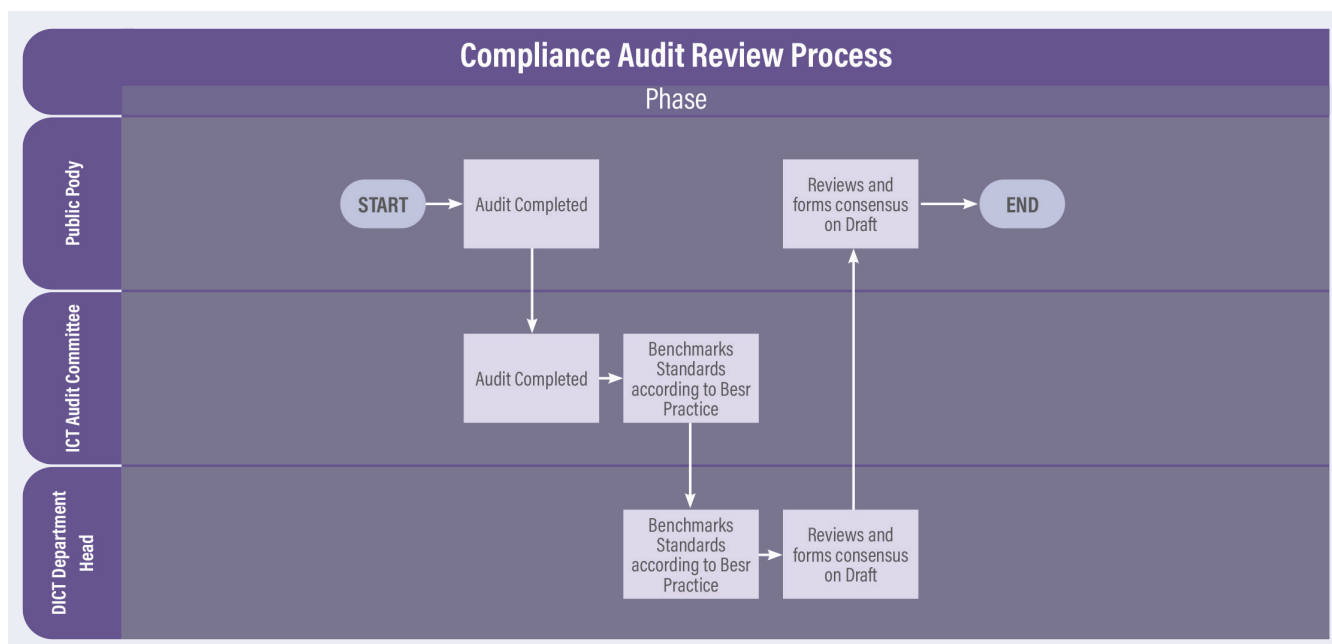


Figure 22: Compliance Audit Review Process

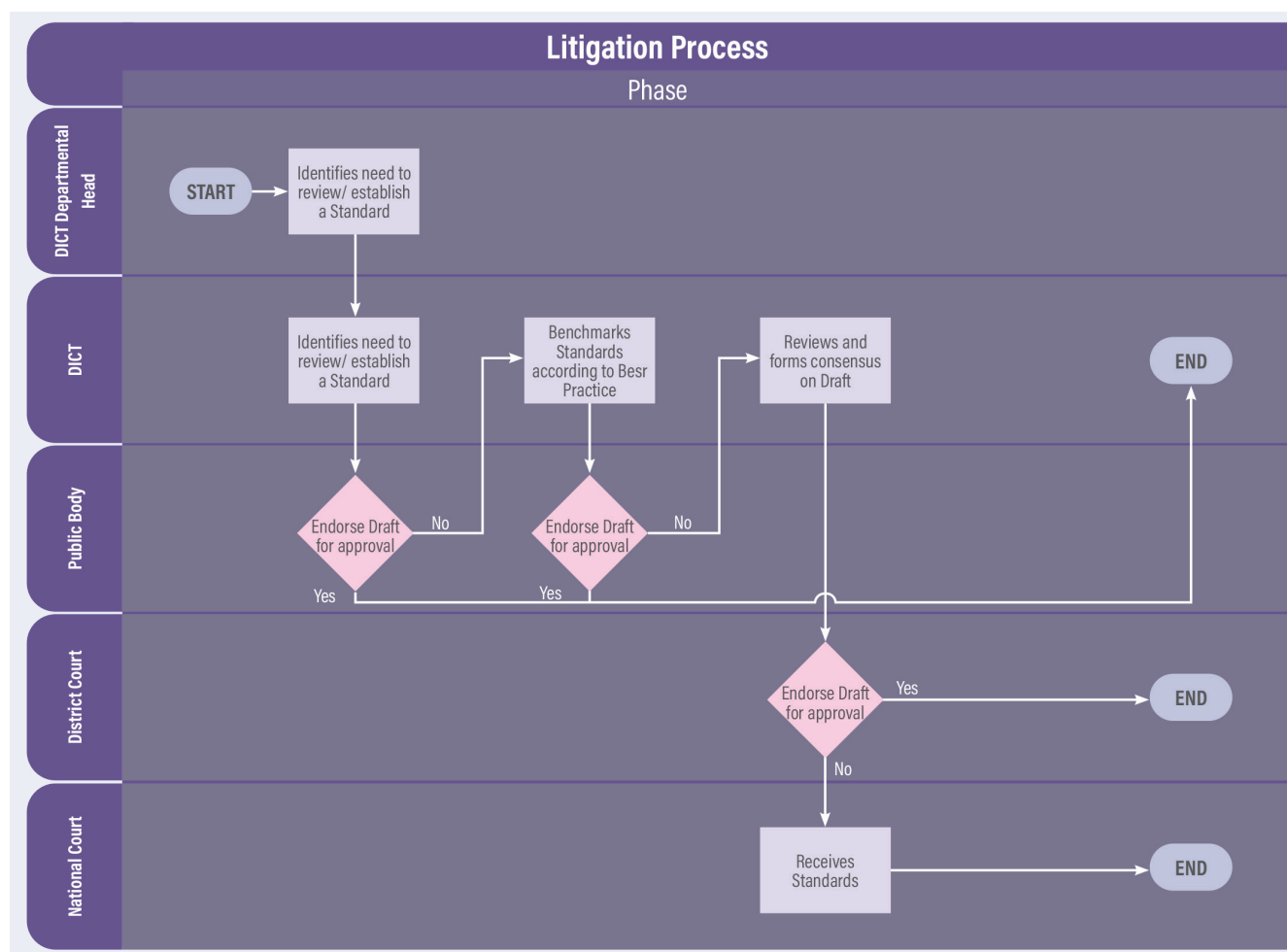


Figure 23: Enforcement [Litigation] Process

Annex 3: 2022 Existing/Ongoing Digital Related Public Investments

Agency No.	Agency	Project		Submission	2022 Approved	Grants	Loans	2022 Total
229	DNPM	Critical Infrastructure for Digital Government (Blockchain)	New		20.00			20.00
229	DNPM	Financial Technology (Fintech) Blockchain Government	Ongoing		10.00			10.00
229	DNPM	National E-ID Card Project	Ongoing	30.00	20.00			20.00
229	DNPM	Smart City Development Program	New		5.00			5.00
229	DNPM	Rural Telecommunication	Ongoing		5.00			5.00
229	DNPM	Smart City Development Program	New		5.00			5.00
229	DNPM	Government Business Modernisation Program	Ongoing		10.00			10.00
557	Forest Authority	Capacity Development in Improving Monitoring Systems of Logging Operations	New		-	3.20		3.20
557	Forest Authority	PNG National Forest Resource Information System	Ongoing	1.50	2.00			2.00
235	NDOE	ICT Development & Capacity Building	Ongoing	5.00	1.00			1.00
355	Library and Archives	Library and Information Technology	Ongoing	36.00	2.00			2.00
218	OPP	OPP Case Management System Upgrade	New	1.70	1.00			1.00
222	PubSols	PS Case Management System	Ongoing	1.00	1.00			1.00
223	Judiciary Services	Sector ICT Program	New	68.50	3.00			3.00
224	MS	MS Case Management System	Ongoing	2.75	1.75			1.75
503	OC	OC Case Management System	Ongoing	1.00	1.00			1.00
522	CLRC	CLRC Case Management System	New	1.00	1.00			1.00
258	DIC	Analogue to Digital Migration	Ongoing		20.00		1.00	21.00
258	DIC	E-Government Roll-Out Program	Ongoing	43.00	5.00			5.00
258	DIC	Kumul Satellite Project	New		10.00			10.00
525	NBC	NBC Rehabilitation & Modernisation Program	Ongoing	14.35	3.50			3.50
544	PNG Data Co	Kumul Submarine Cable	Ongoing	144.45	5.00		100.00	105.00
544	PNG Data Co	Mendi - Hides Fibre Optic Cable Project (Missing Link)	Ongoing	-	3.00			3.00
229	DNPM	MVNO Support Grant	New		4.00			4.00
206	Finance	Financial Management Information Project (FMIP)	Ongoing	10.00	10.00			10.00
206	Finance	Non-tax Revenue Digitalisation Project	New	2.60	1.00			1.00
216	IRC	Integrated Tax Administration System (ITAS)	Ongoing	80.00	25.00			25.00
220	DPM	Payroll Management System Upgrade	Ongoing	1.00	1.00			1.00
220	DPM	Performance Management System	Ongoing	1.00	2.00			2.00
268	NPC	NPC e-Procurement Strategy	Ongoing	5.00	1.00			1.00
252	Lands	LEAP (GoLANDS)	Ongoing	4.50	2.00			2.00
TOTAL				454.35	181.25	3.20	101.00	285.45

Figure 22: 2022 Existing/Ongoing Digital Related Public Investments



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